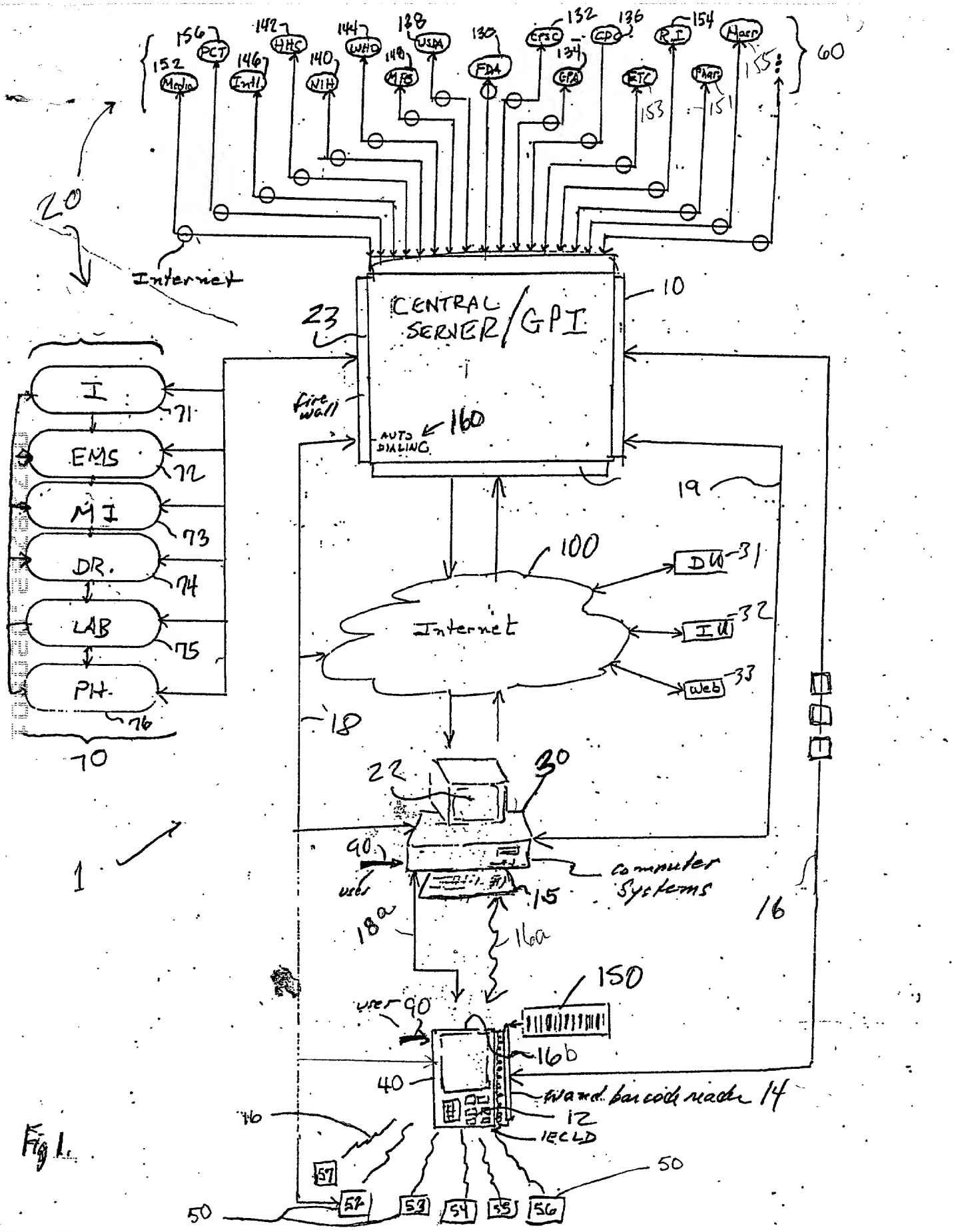
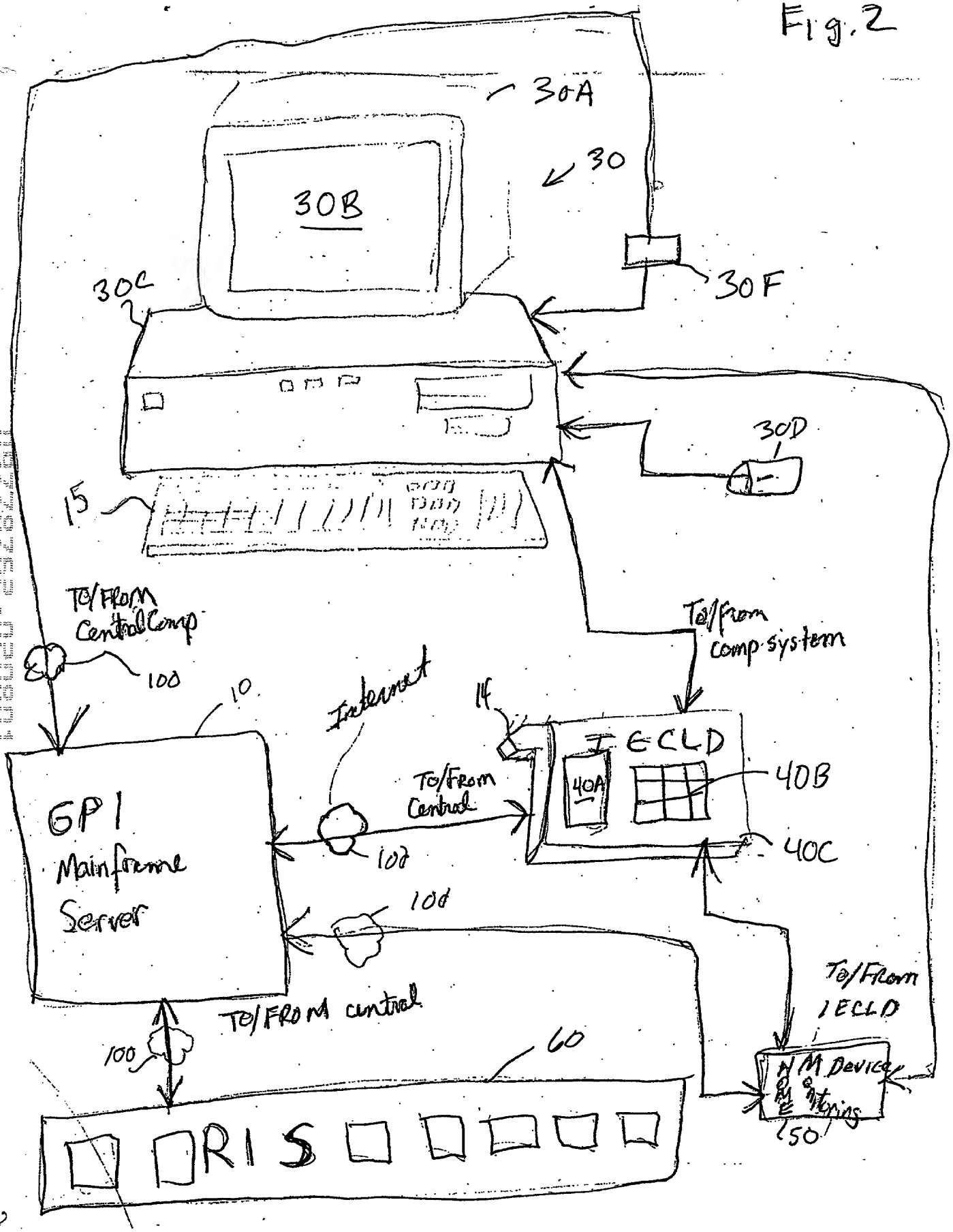

20
Internet
CENTRAL SERVER/GPI
10
23
fire wall
AUTO DIALING
160
19
100
Internet
DW
IW
web
31
32
33
I
EMS
MI
DR.
LAB
PH.
71
72
73
74
75
76
70
18
22
30
1
90
user
computer systems
15
16
18a
16a
150
user 90
16b
40
wand barcode reader 14
12
IECLD
16
57
52
53
54
55
56
50
50
60
Media
PCT
Intl
WHC
NIH
MIB
USDA
FDA
EPSC
GPA
CPC
ETC
RI
Pharm
Hosp
152
156
146
142
140
144
148
138
130
132
134
136
153
154
151
155

Fig 1.

Fig. 2


30A
30
30B
30C
30F
30D
15
To/From Central Comp
100
10
GP1 Mainframe Server
Internet
14
To/From comp system
ECLD
40A
40B
40C
To/From Central
102
102
To/FROM central
100
60
To/From ECLD
NM Device & Interface
150
RIS

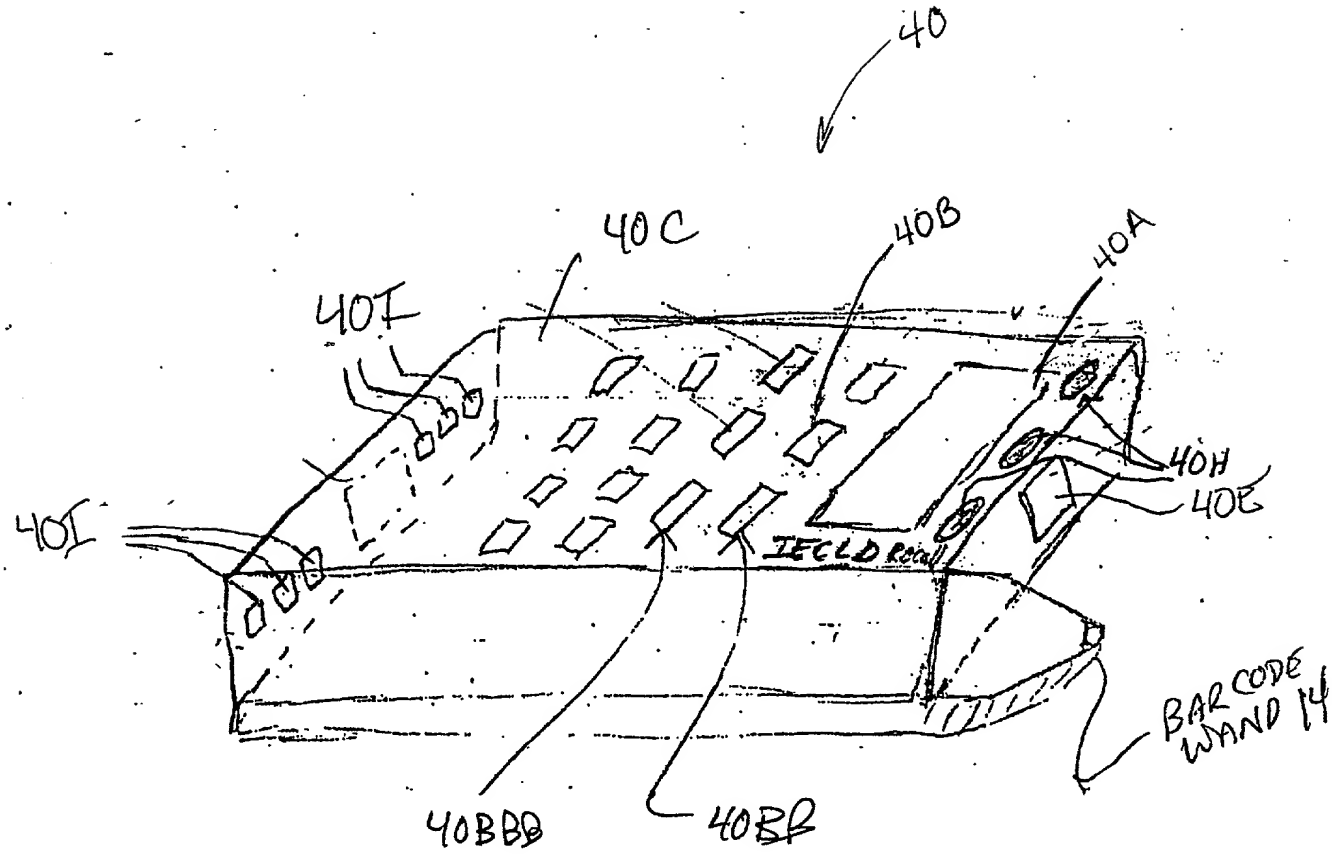

40
40C
40B
40A
40F
40H
40E
40I
IECLD Read
BAR CODE WAND 14
40BBB
40BB

FIG. 3A

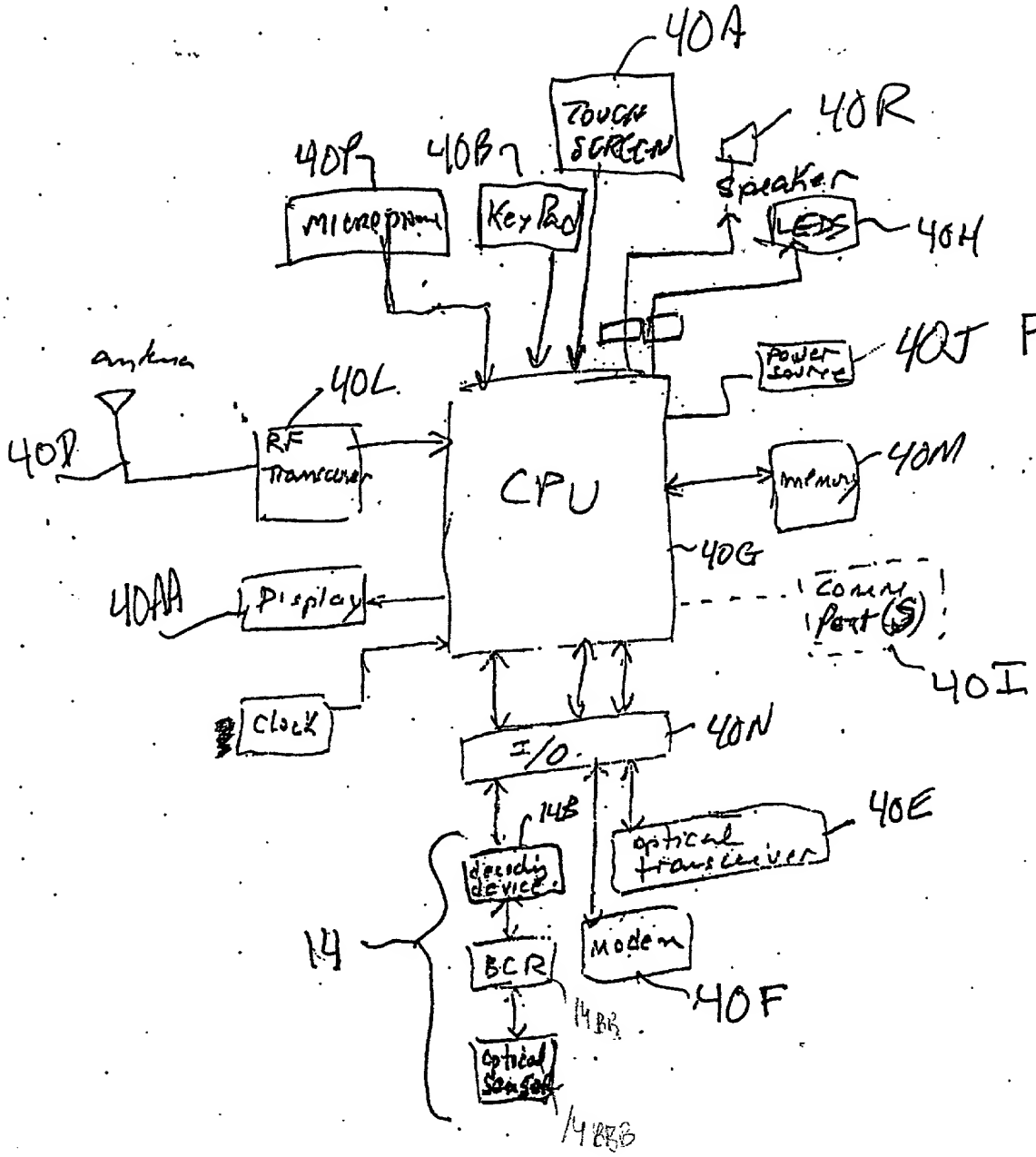

40A
Touch Screen
40R
40P
40B
Microphone
Key Pad
Speaker
LEDs
40H
antenna
40L
40J
Power Source
40K
RF Transceiver
CPU
Memory
40M
40G
40AA
Display
Comm Port(s)
40I
Clock
I/O
40N
14B
40E
decoding device
optical transceiver
14
BCR
Modem
40F
14BB
Optical Sensor
14BBB

FIG. 3B

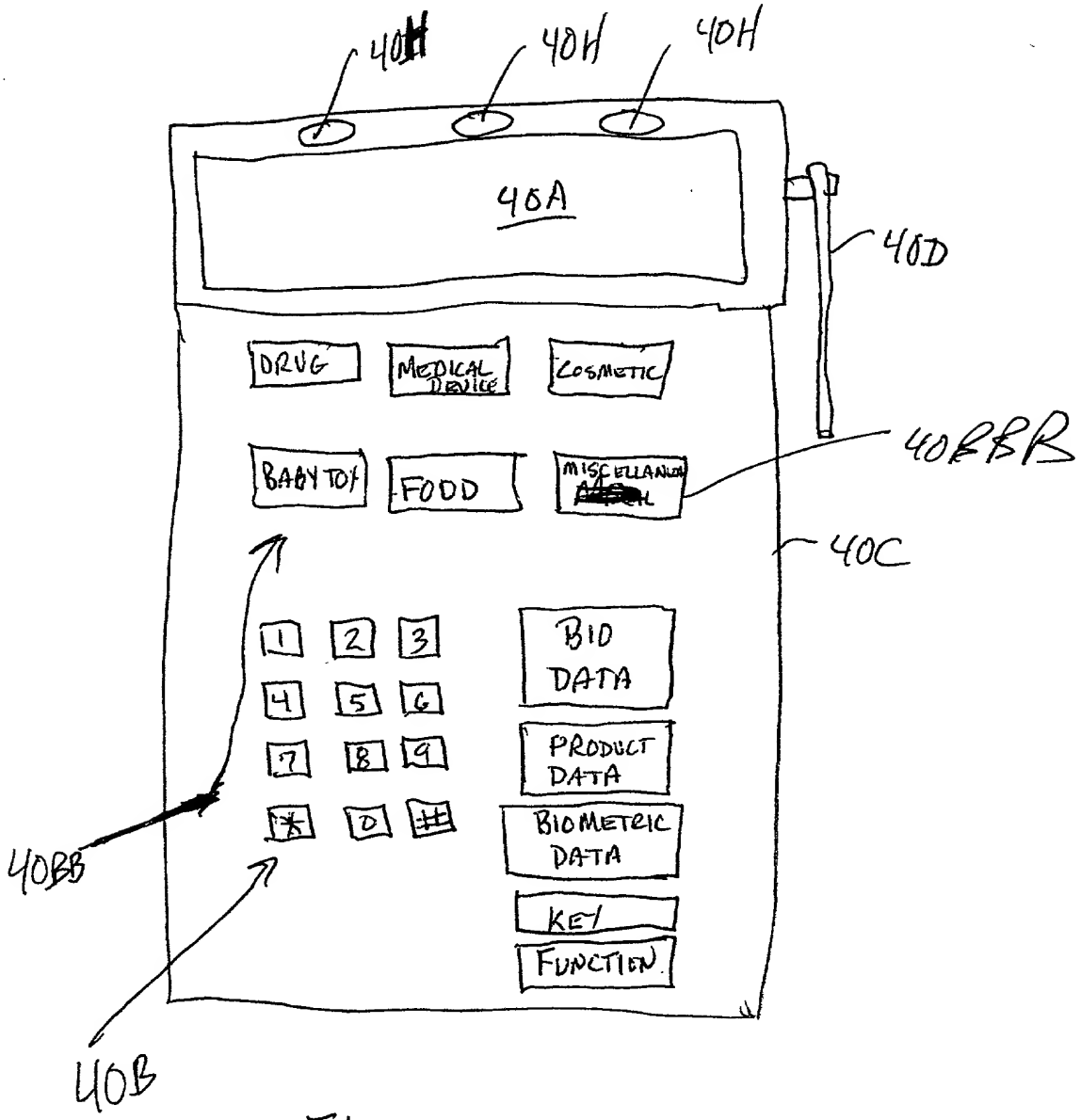
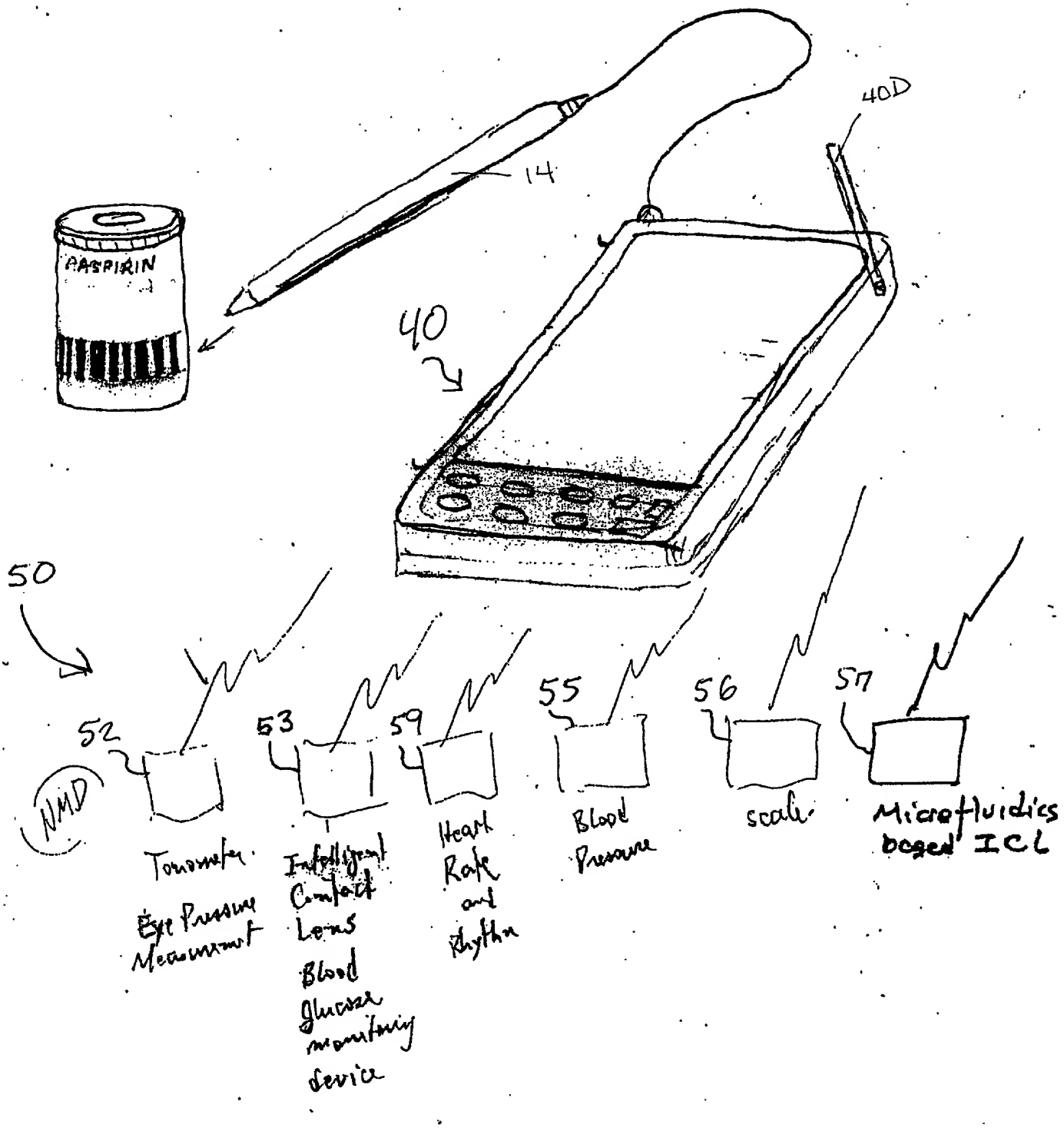

40H
40H
40H
40A
40D
DRUG
MEDICAL DEVICE
COSMETIC
BABY TOY
FOOD
MISCELLANEOUS
40BBR
40C
1
2
3
4
5
6
7
8
9
*
0
#
BIO DATA
PRODUCT DATA
BIOMETRIC DATA
KEY FUNCTION
40BB
40B

FIG. 3C

FIG 4


ASPIRIN
14
40D
40
50
52
53
59
55
56
57
NMD
Tonometer
Eye Pressure Measurement
Infolligent Comfort Lens
Blood glucose monitoring device
Heart Rate and Rhythm
Blood Pressure
scale
Microfluidics based ICL

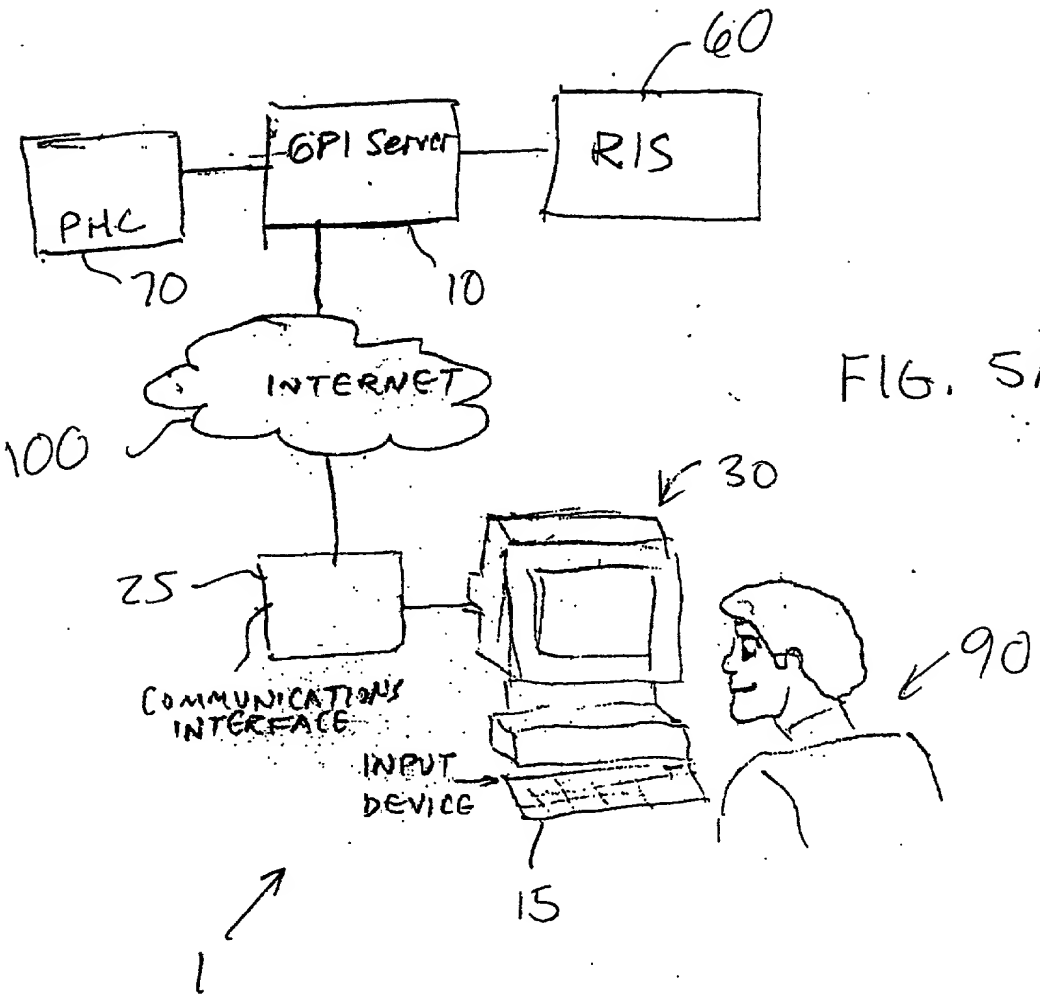

60
GPI Server
RIS
PHC
70
10
INTERNET
100
30
25
90
COMMUNICATIONS INTERFACE
INPUT DEVICE
15
1

FIG. 5A

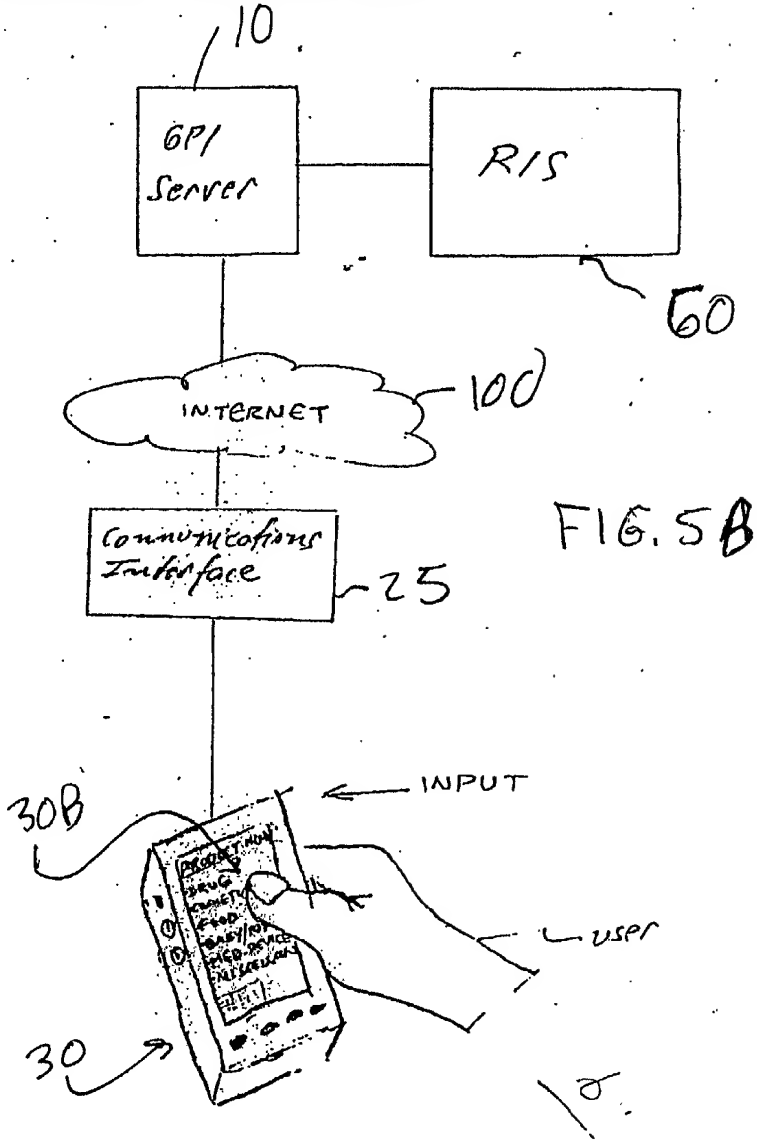

10
GPI Server
RIS
60
INTERNET
100
Communications Interface
25
INPUT
30B
user
30

FIG. 5B

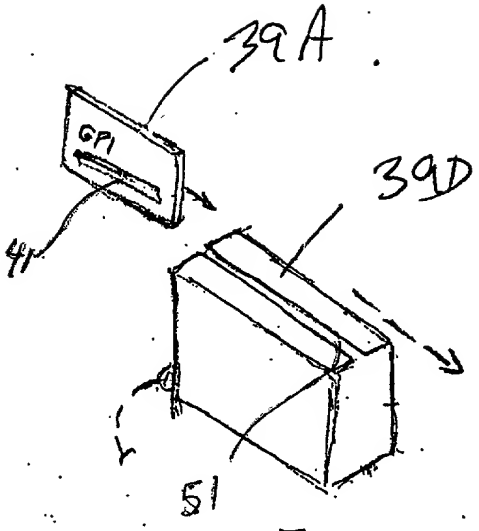


FIG. 5C

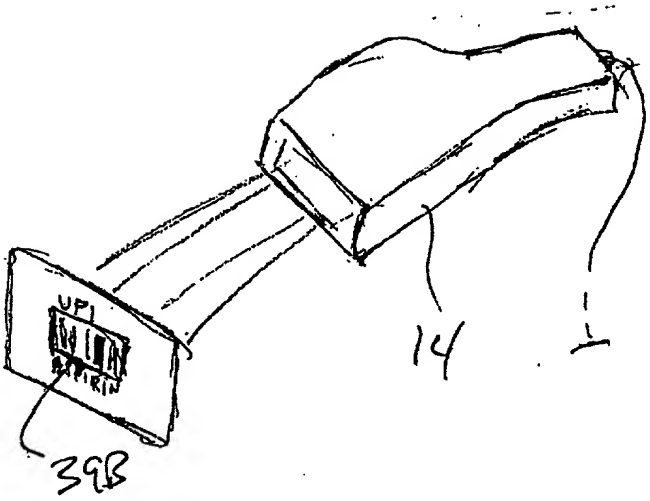


FIG. 5D

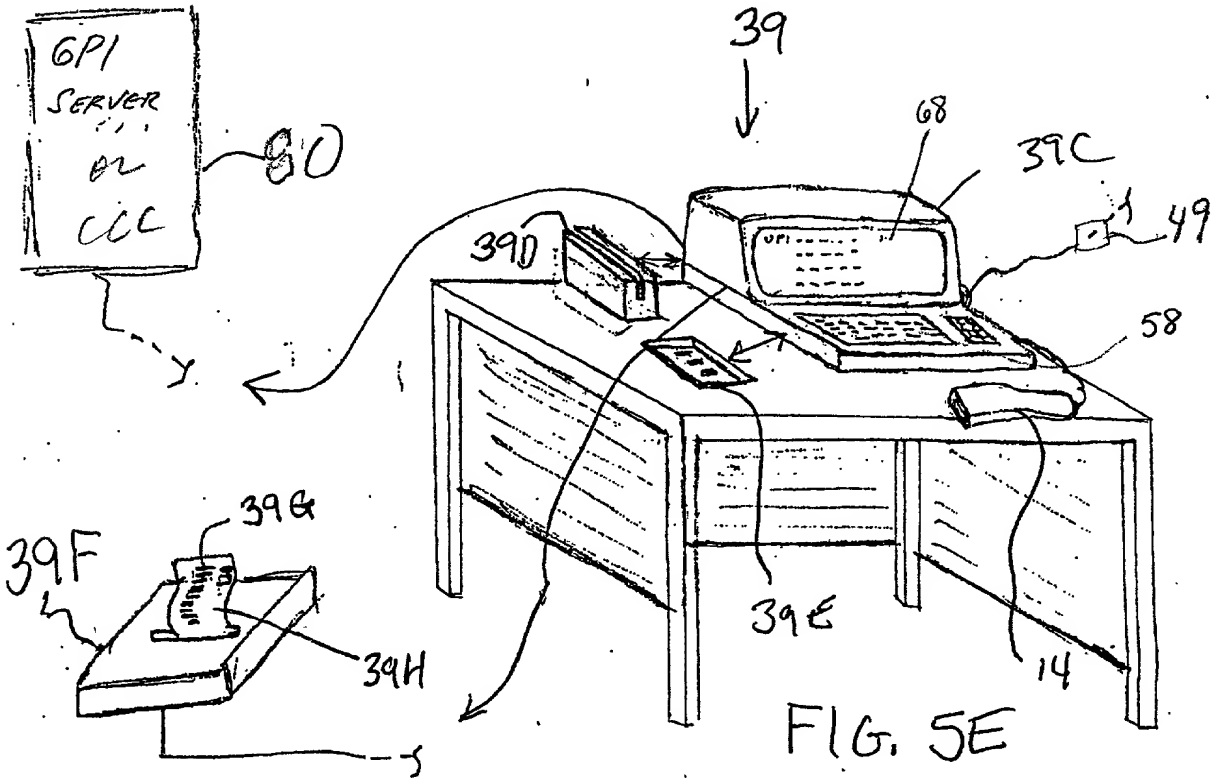


FIG. 5E

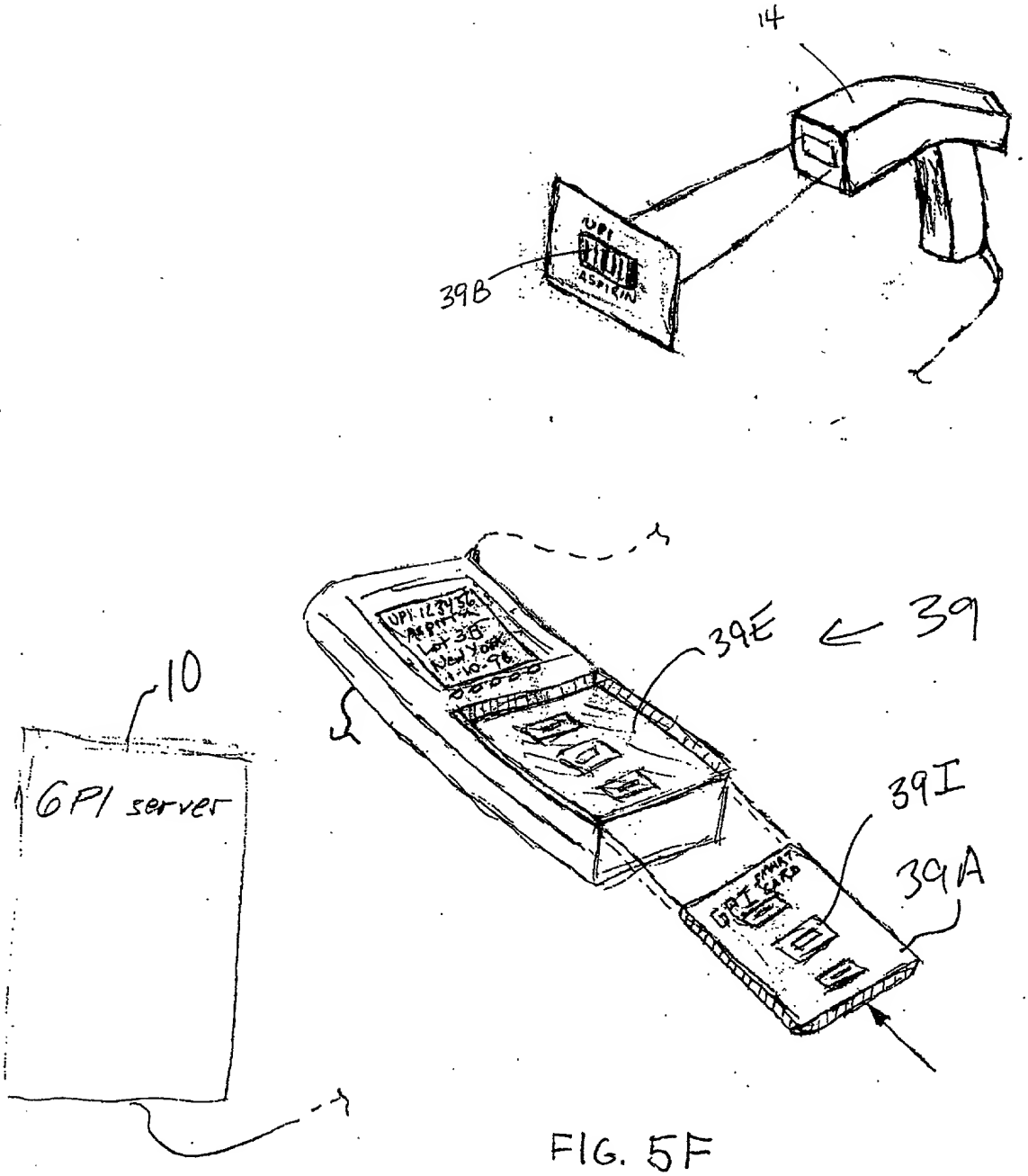

14
39B
UPI 12345
ASPIRIN
10
GPI server
39E
39
39I
39A
GPI SMART CARD

FIG. 5F

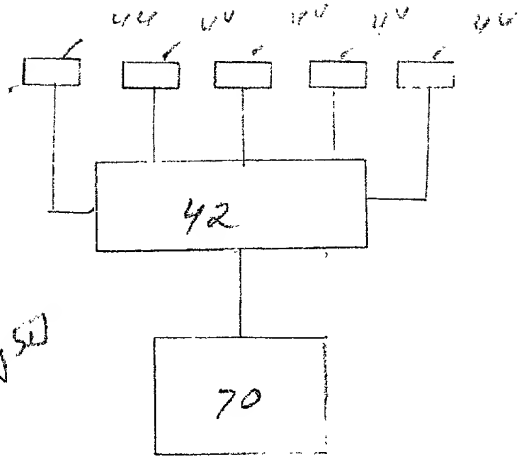
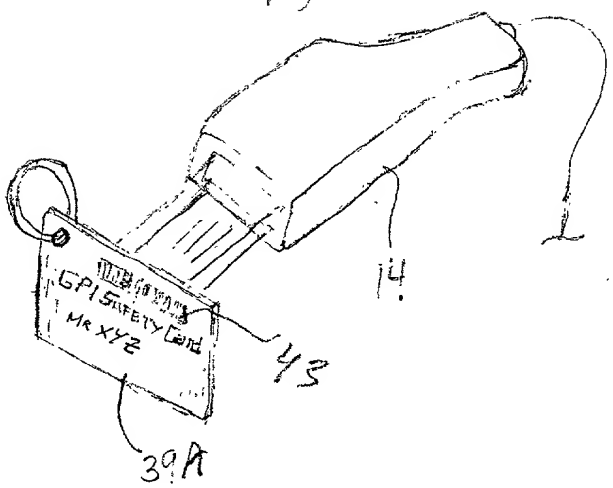


Fig 5J

Fig 5G.



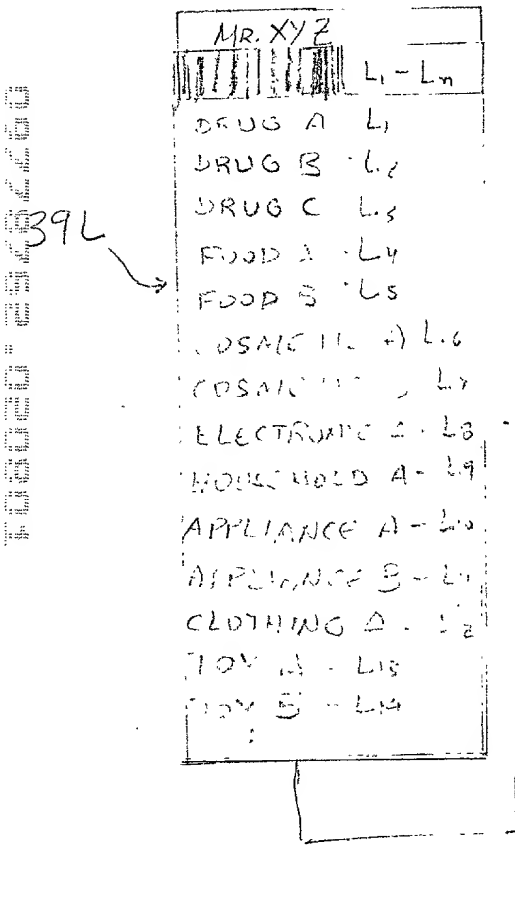


Fig 5H

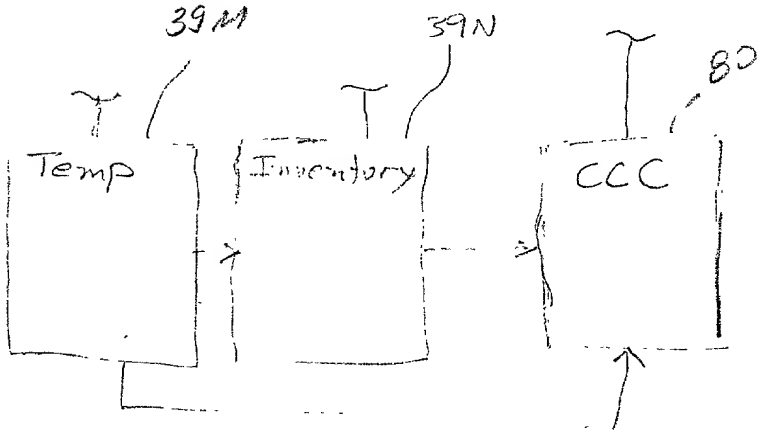


Fig 5I

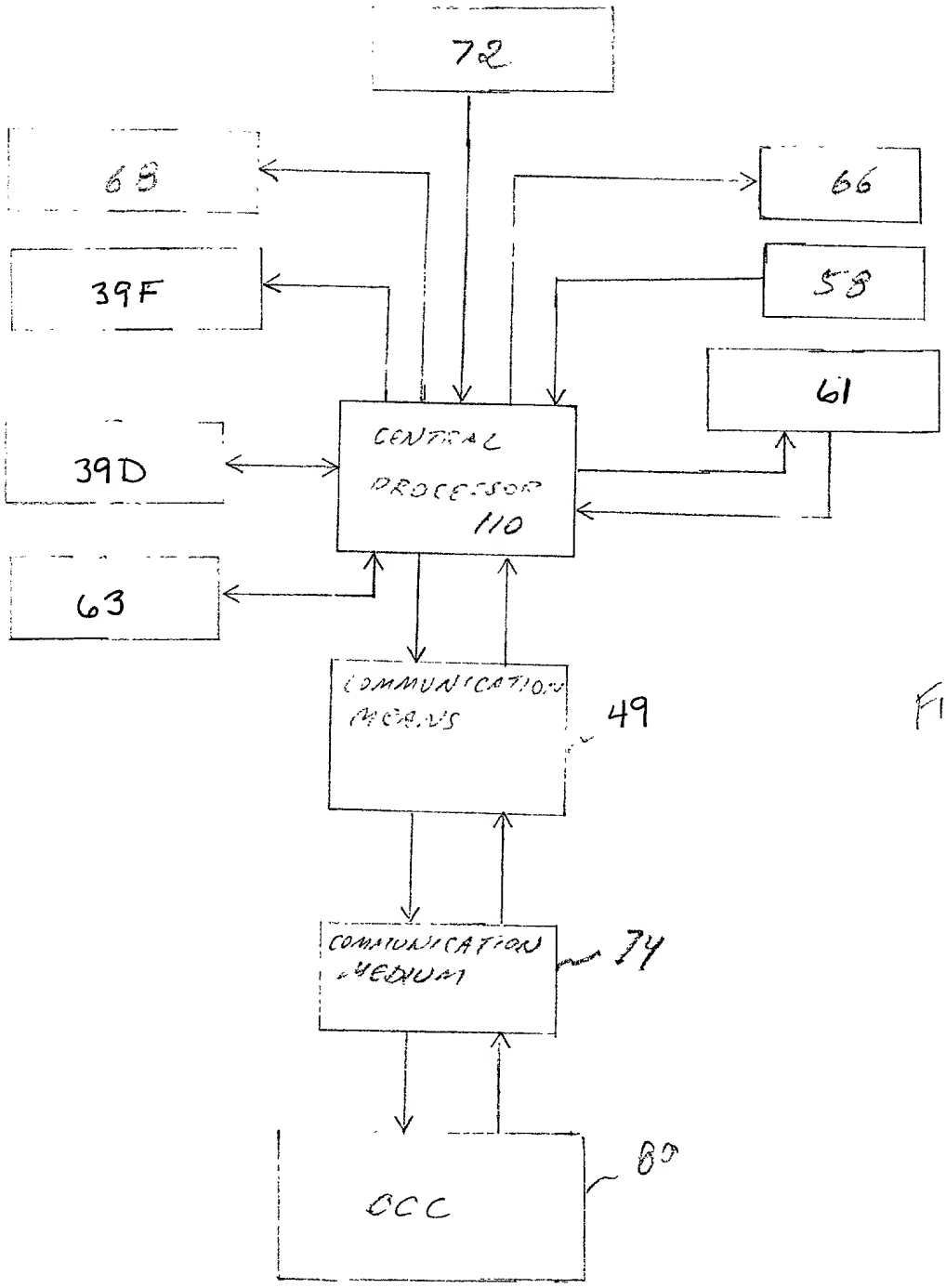

72
65
66
39F
58
61
39D
CENTRAL PROCESSOR 110
63
COMMUNICATION MEANS
49
COMMUNICATION MEDIUM
74
OCC
80

Fig 5K

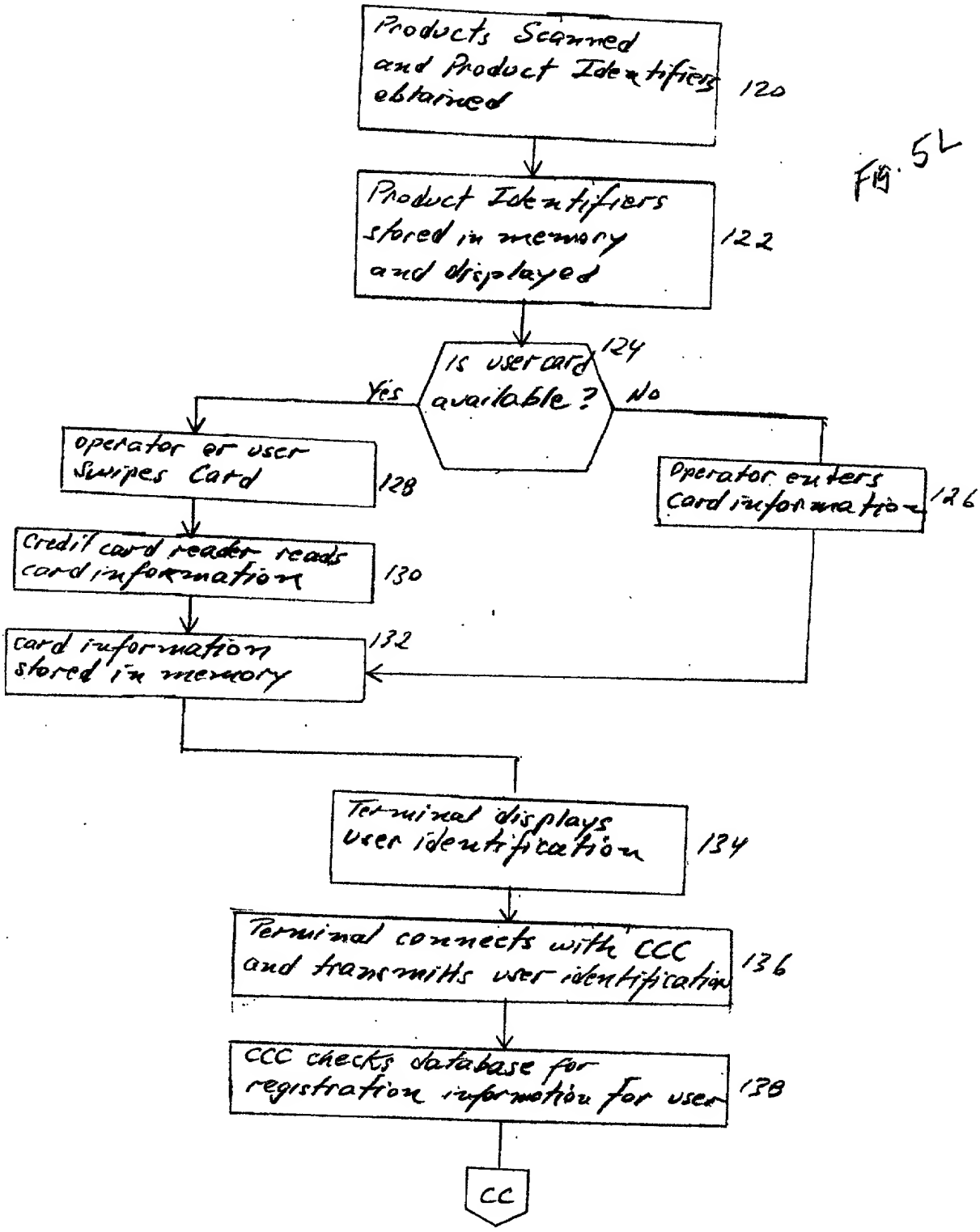

Products Scanned and Product Identifiers obtained
120
Product Identifiers stored in memory and displayed
122
Is user card available?
124
Yes
No
operator or user Swipes Card
128
Credit card reader reads card information
130
Operator enters card information
126
card information stored in memory
132
Terminal displays user identification
134
Terminal connects with CCC and transmits user identification
136
CCC checks database for registration information for user
138
CC

Fig. 5L

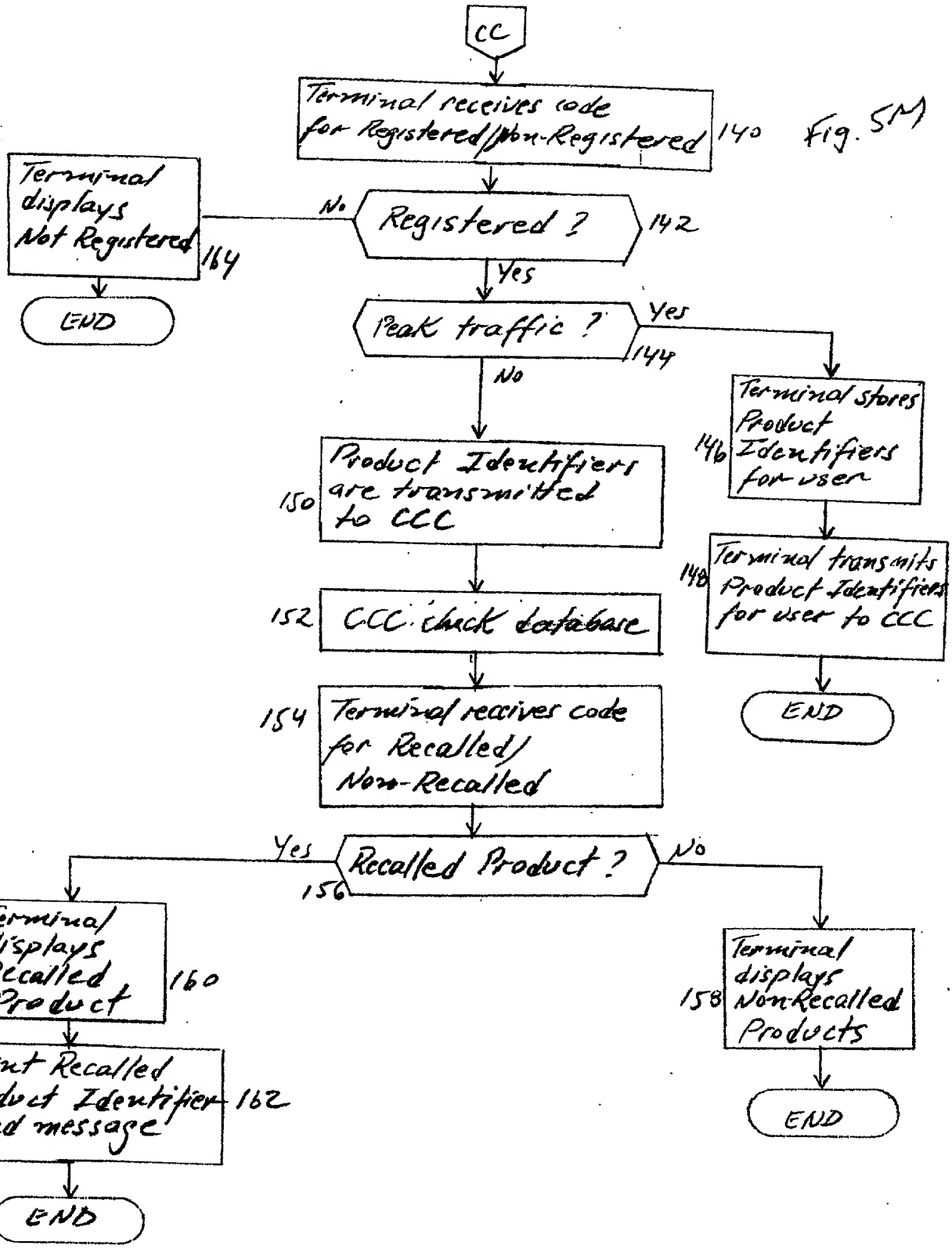

CC
Terminal receives code for Registered/Non-Registered
140
Registered ?
142
No
Terminal displays Not Registered
164
END
Yes
Peak traffic ?
144
Yes
No
Terminal stores Product Identifiers for user
146
Terminal transmits Product Identifiers for user to CCC
148
END
Product Identifiers are transmitted to CCC
150
CCC check database
152
Terminal receives code for Recalled/ Non-Recalled
154
Recalled Product ?
156
Yes
No
Terminal displays Recalled Product
160
Print Recalled Product Identifier and message
162
END
Terminal displays Non-Recalled Products
158
END

Fig. 5M

Fig 5N

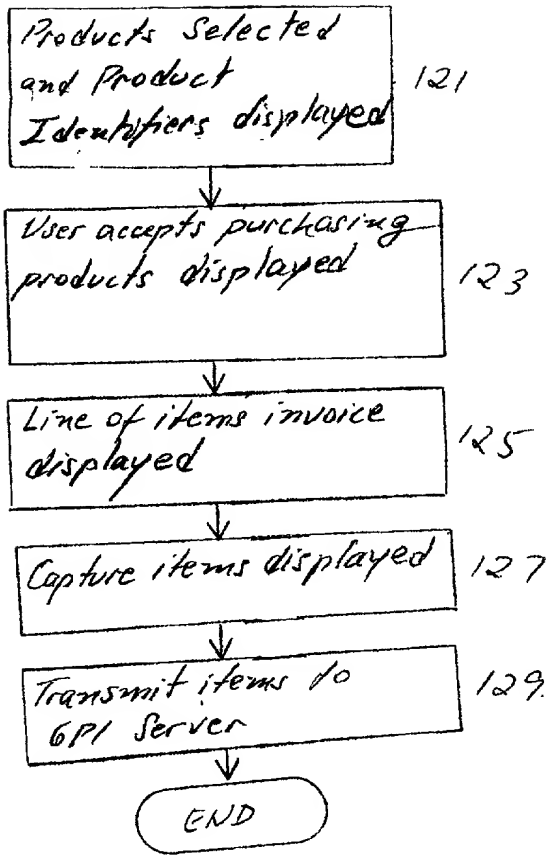


Fig 5P

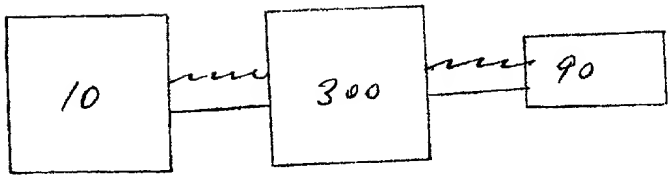


Fig 5Q

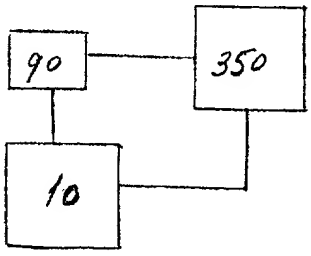


Fig 6

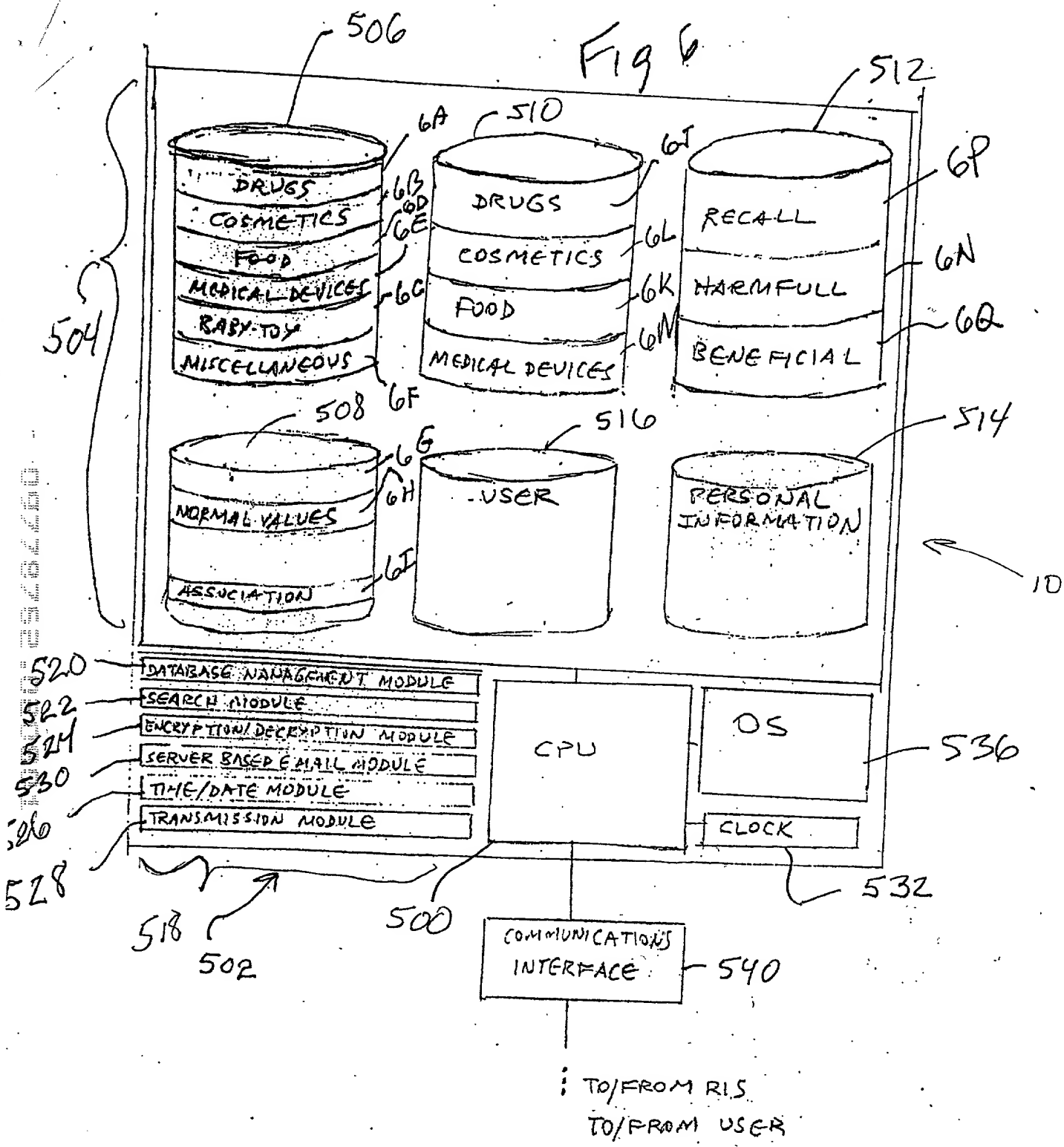

506
504
6A
DRUGS
6B
COSMETICS
6D
6E
FOOD
MEDICAL DEVICES
6C
BABY TOY
MISCELLANEOUS
6F
510
6I
DRUGS
6L
COSMETICS
6K
FOOD
6M
MEDICAL DEVICES
512
6P
RECALL
6N
HARMFULL
6Q
BENEFICIAL
508
6G
6H
NORMAL VALUES
6I
ASSOCIATION
516
USER
514
PERSONAL INFORMATION
10
520
DATABASE MANAGEMENT MODULE
522
SEARCH MODULE
524
ENCRYPTION/DECRYPTION MODULE
530
SERVER BASED E MAIL MODULE
526
TIME/DATE MODULE
528
TRANSMISSION MODULE
CPU
OS
536
CLOCK
532
518
502
500
COMMUNICATIONS INTERFACE
540
TO/FROM RIS
TO/FROM USER

FIG. 7

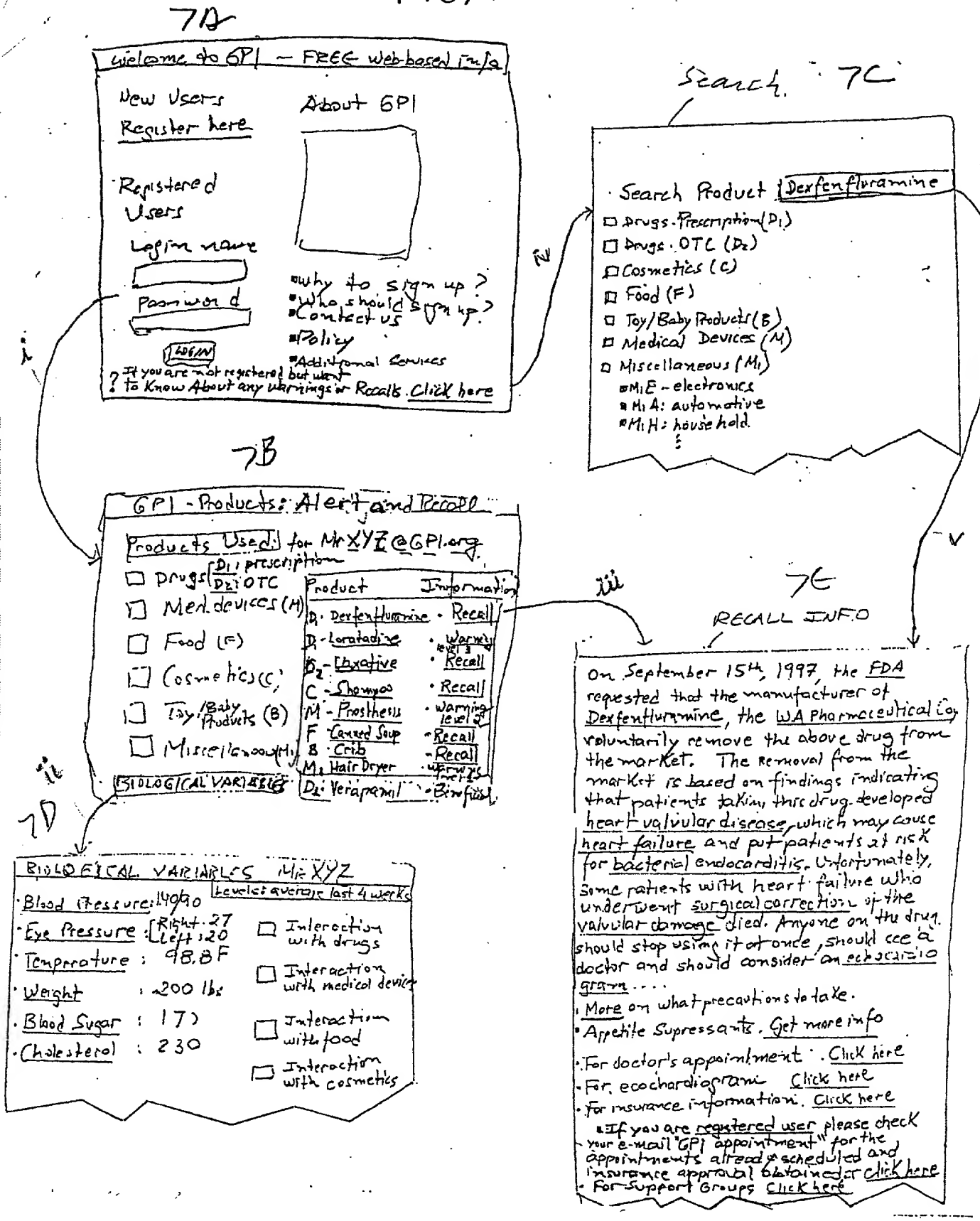
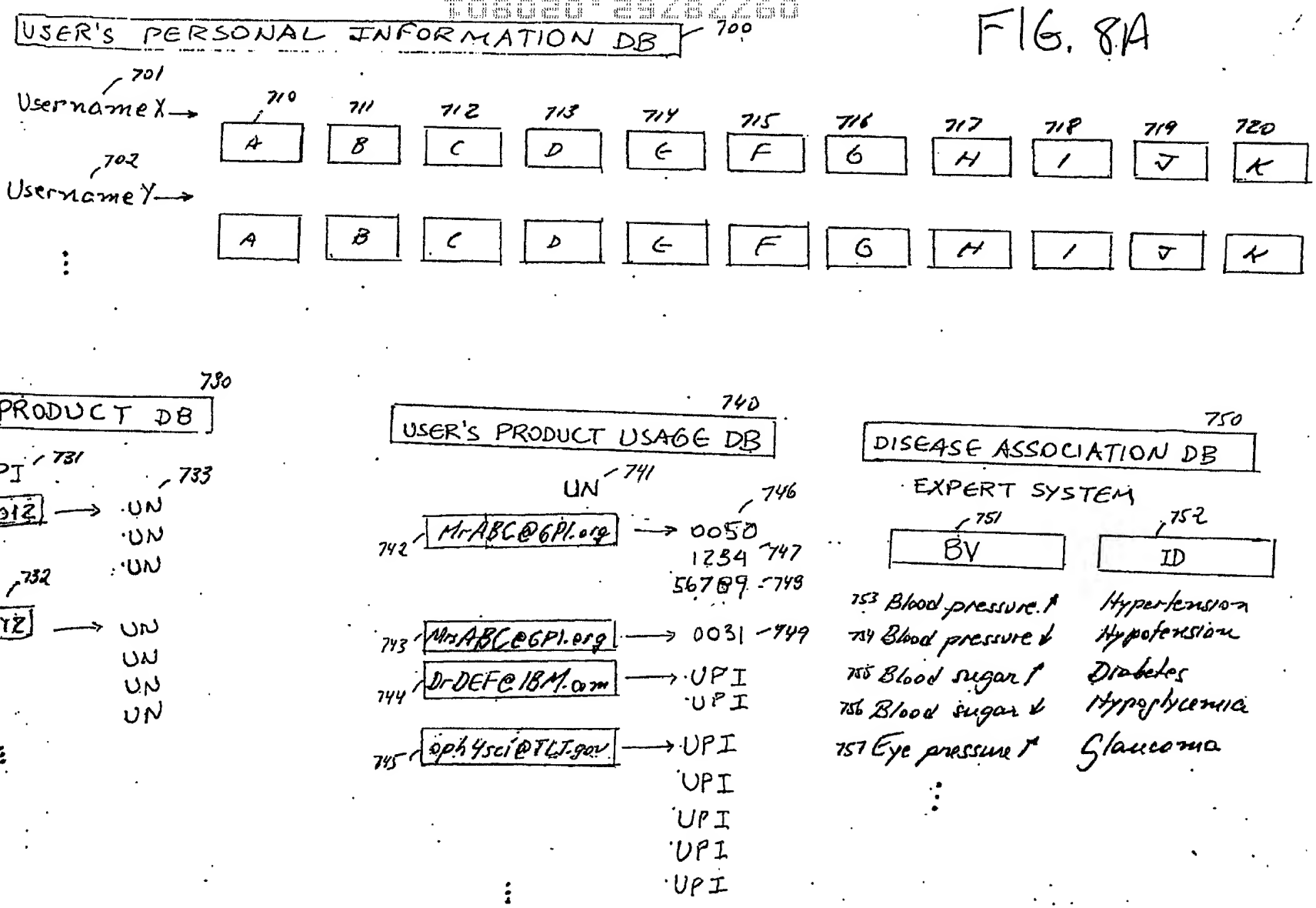

7A
Welcome to GPI — FREE Web-based Info
New Users
Register here
About GPI
Registered Users
Login name
Password
LOGIN
Why to sign up?
Who should sign up?
Contact us
Policy
Additional Services
? If you are not registered but want to know about any warnings or Recalls Click here
i
ii
7B
GPI - Products: Alert and Recall
Products Used for MrXYZ@GPI.org
drugs [D1 prescription / D2 OTC]
Med. devices (M)
Food (F)
Cosmetics (C)
Toy/Baby Products (B)
Miscellaneous (Mi)
BIOLOGICAL VARIABLES
Product Information
D1 - Dexfenfluramine - Recall
D1 - Loratadine - Warning level 3
D2 - Laxative - Recall
C - Shampoo - Recall
M1 - Prosthesis - warning level 2
F - Canned Soup - Recall
B - Crib - Recall
M2 - Hair Dryer - warning level 2
D2 - Verapamil - Diuretic
iii
iv
v
7C
Search
Search Product Dexfenfluramine
Drugs - Prescription (D1)
Drugs - OTC (D2)
Cosmetics (C)
Food (F)
Toy/Baby Products (B)
Medical Devices (M)
Miscellaneous (M1)
M1E - electronics
M1A: automotive
M1H: household
RECALL INFO
On September 15th, 1997, the FDA requested that the manufacturer of Dexfenfluramine, the WA Pharmaceutical Co. voluntarily remove the above drug from the market. The removal from the market is based on findings indicating that patients taking this drug developed heart valvular disease, which may cause heart failure and put patients at risk for bacterial endocarditis. Unfortunately, some patients with heart failure who underwent surgical correction of the valvular damage died. Anyone on the drug should stop using it at once, should see a doctor and should consider an echocardiogram....
More on what precautions to take.
Appetite Supressants. Get more info
For doctor's appointment. Click here
For ecochardiogram Click here
For insurance information. Click here
If you are registered user please check your e-mail "GPI appointment" for the appointments already scheduled and insurance approval obtained or click here
For Support Groups Click here
7D
BIOLOGICAL VARIABLES Mr XYZ
Levels: average last 4 weeks
Blood Pressure: 140/90
Eye Pressure: [Right: 27 / Left: 20]
Temprature: 98.8F
Weight: 200 lbs
Blood Sugar: 170
Cholesterol: 230
Interaction with drugs
Interaction with medical device
Interaction with food
Interaction with cosmetics

FIG. 8A


USER'S PERSONAL INFORMATION DB
700
701
Username X
702
Username Y
710
711
712
713
714
715
716
717
718
719
720
A
B
C
D
E
F
G
H
I
J
K
PRODUCT DB
730
UPI
731
733
1012
2412
732
UN
USER'S PRODUCT USAGE DB
740
741
742
MrABC@GPI.org
743
MrsABC@GPI.org
744
DrDEF@IBM.com
745
oph4sci@TLI.gov
746
747
748
749
0050
1234
56789
0031
DISEASE ASSOCIATION DB
750
EXPERT SYSTEM
751
BV
752
ID
753 Blood pressure ↑
754 Blood pressure ↓
755 Blood sugar ↑
756 Blood sugar ↓
757 Eye pressure ↑
Hypertension
Hypotension
Diabetes
Hypoglycemia
Glaucoma

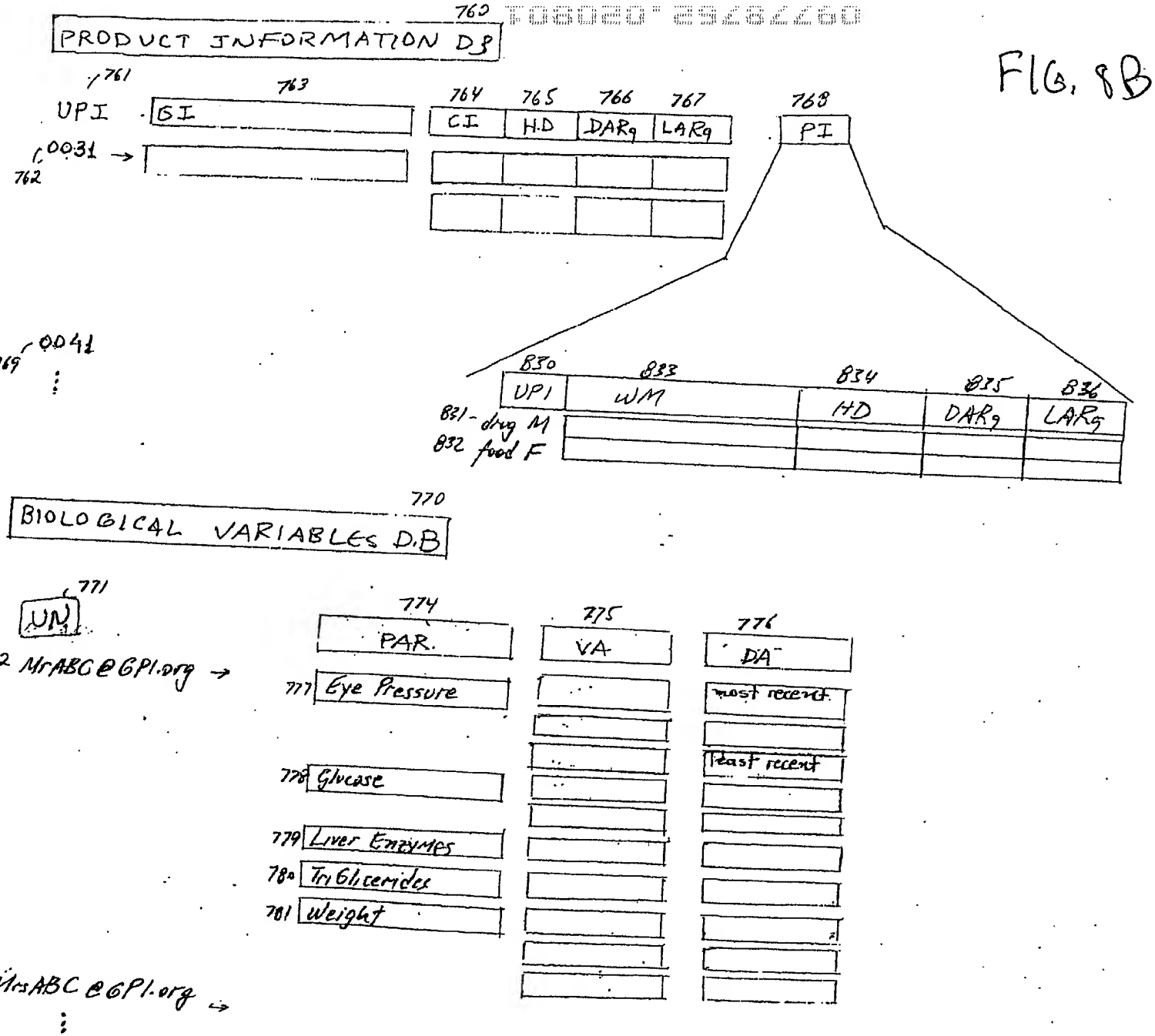
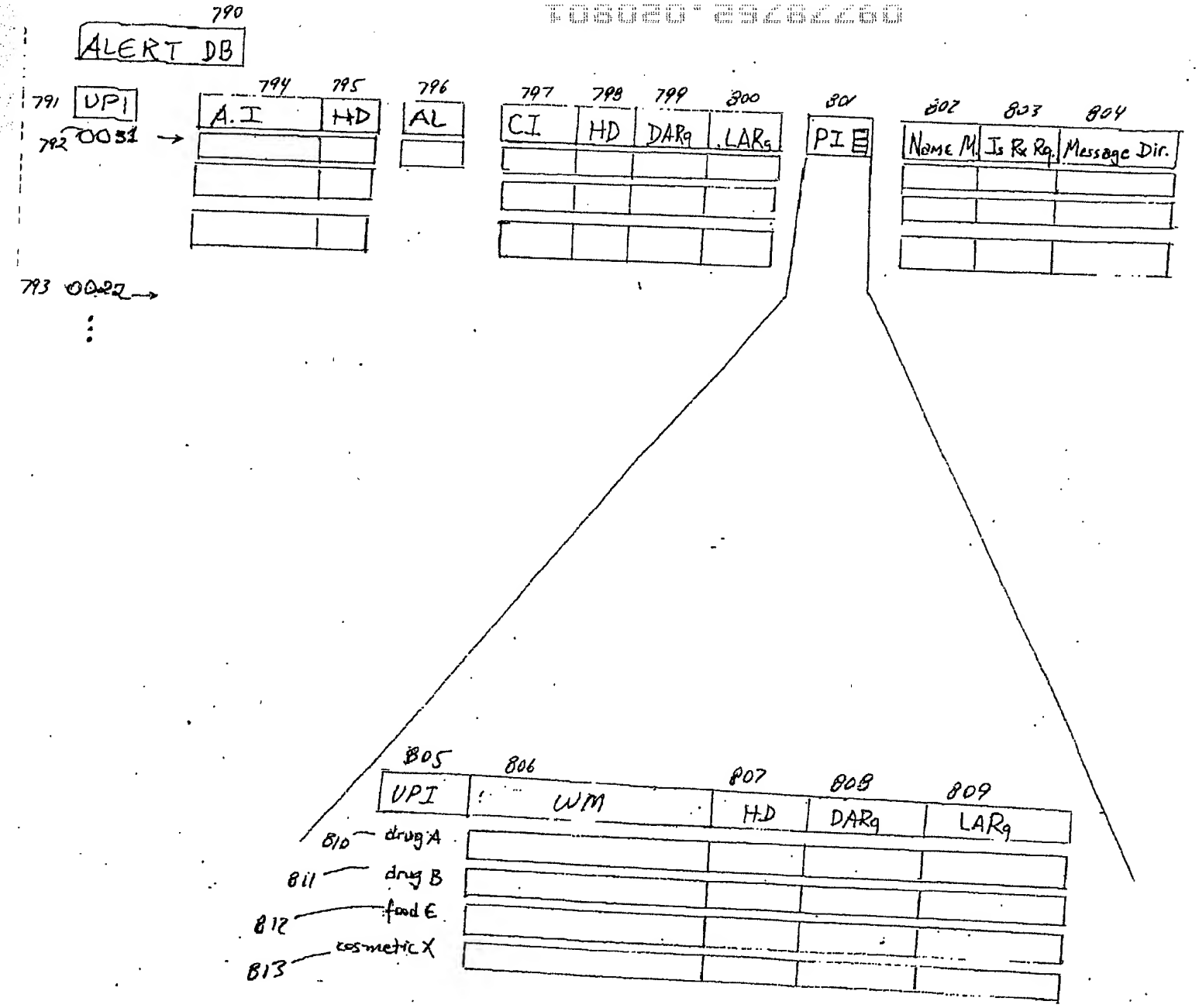

760
PRODUCT INFORMATION DB
761
UPI
763
GI
764
CI
765
H.D
766
DARq
767
LARq
768
PI
0031
762
0041
769
830
UPI
833
WM
834
HD
835
DARq
836
LARq
831 drug M
832 food F
770
BIOLOGICAL VARIABLES D.B
771
UN
772 MrABC@GPI.org
774
PAR.
775
VA
776
DA
777 Eye Pressure
most recent
778 Glucose
least recent
779 Liver Enzymes
780 Triglycerides
781 Weight
773
MrsABC@GPI.org

FIG. 8B

FIG 8C


790
ALERT DB
791 VPI
792 0031
793 0027
794
795
796
797
798
799
800
801
802
803
804
A.I
HD
AL
CI
HD
DARq
LARq
PI
Name M
Is Rx Rq.
Message Dir.
805
806
807
808
809
VPI
WM
H.D
DARq
LARq
810 drug A
811 drug B
812 food E
813 cosmetic X

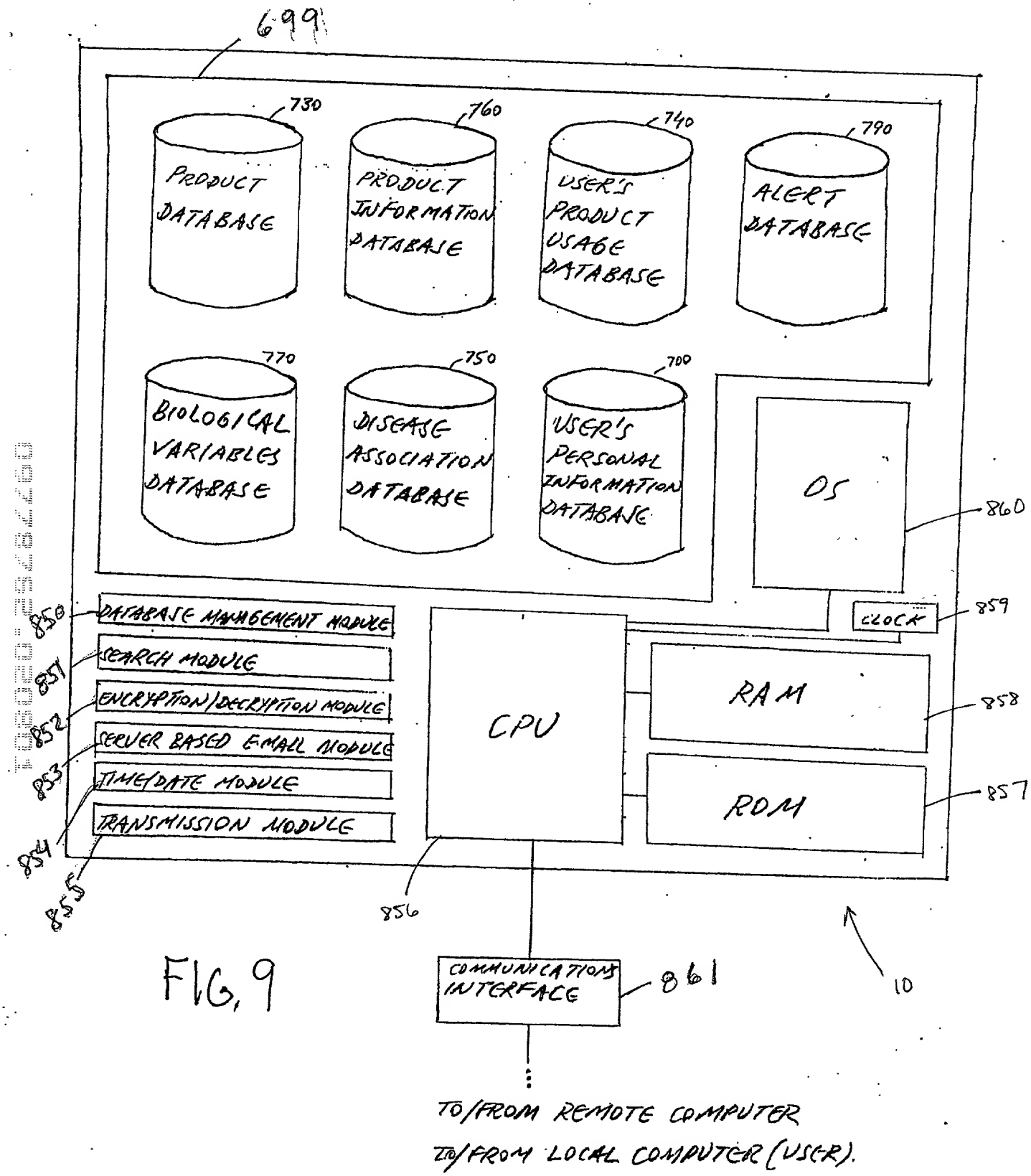

699
730
PRODUCT DATABASE
760
PRODUCT INFORMATION DATABASE
740
USER'S PRODUCT USAGE DATABASE
790
ALERT DATABASE
770
BIOLOGICAL VARIABLES DATABASE
750
DISEASE ASSOCIATION DATABASE
700
USER'S PERSONAL INFORMATION DATABASE
OS
860
850
DATABASE MANAGEMENT MODULE
851
SEARCH MODULE
852
ENCRYPTION/DECRYPTION MODULE
853
SERVER BASED E-MAIL MODULE
854
TIME/DATE MODULE
855
TRANSMISSION MODULE
CPU
CLOCK
859
RAM
858
ROM
857
856
COMMUNICATIONS INTERFACE
861
10
TO/FROM REMOTE COMPUTER
TO/FROM LOCAL COMPUTER (USER).

FIG. 9

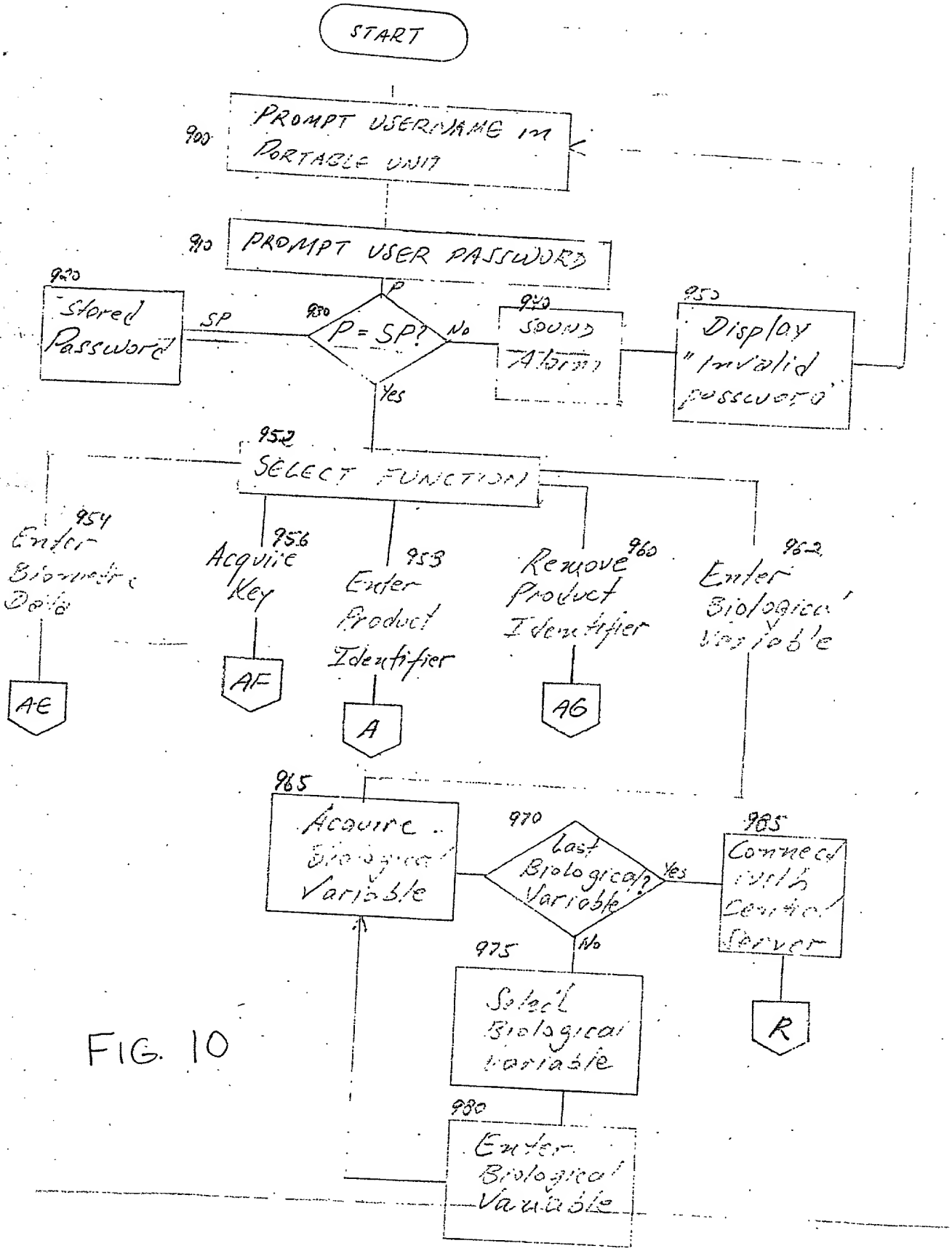

START
900
PROMPT USERNAME IN PORTABLE UNIT
910
PROMPT USER PASSWORD
P
920
Stored Password
SP
930
P = SP?
No
Yes
940
SOUND ALARM
950
Display "Invalid password"
952
SELECT FUNCTION
954
Enter Biometric Data
956
Acquire Key
953
Enter Product Identifier
960
Remove Product Identifier
962
Enter Biological Variable
AE
AF
A
A6
965
Acquire Biological Variable
970
Last Biological Variable?
Yes
No
975
Select Biological Variable
980
Enter Biological Variable
985
Connect with Central Server
R

FIG. 10

Fig 11A

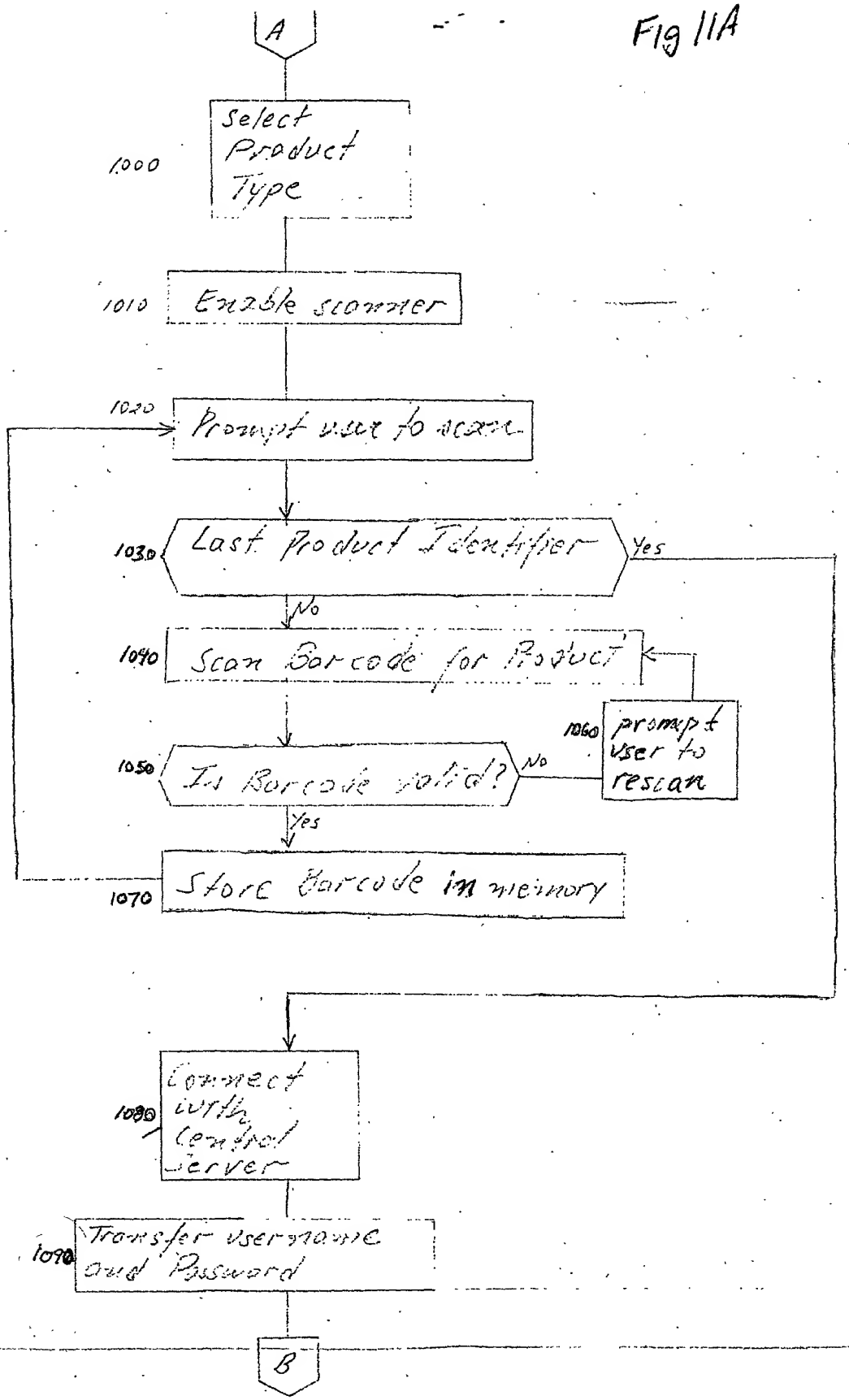
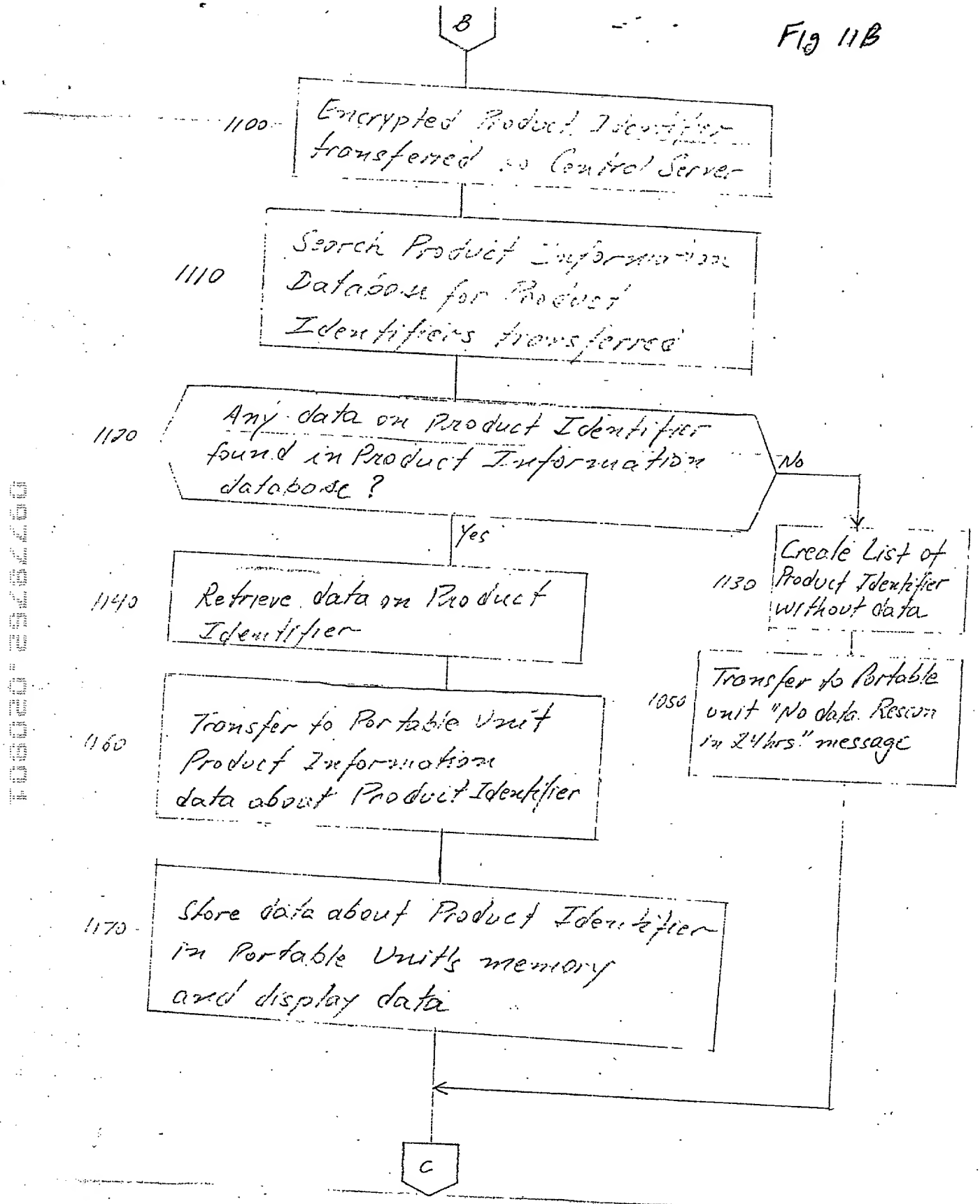

A
1000
Select Product Type
1010
Enable scanner
1020
Prompt user to scan
1030
Last Product Identifier
Yes
No
1040
Scan Barcode for Product
1060
prompt user to rescan
1050
Is Barcode valid?
No
Yes
1070
Store Barcode in memory
1080
Connect with central server
1090
Transfer username and Password
B

Fig 11B


B
1100
Encrypted Product Identifier transferred to Central Server
1110
Search Product Information Database for Product Identifiers transferred
1120
Any data on Product Identifier found in Product Information database ?
No
Yes
1130
Create List of Product Identifier without data
1050
Transfer to Portable unit "No data. Recon in 24hrs." message
1140
Retrieve data on Product Identifier
1160
Transfer to Portable Unit Product Information data about Product Identifier
1170
Store data about Product Identifier in Portable Units memory and display data
C

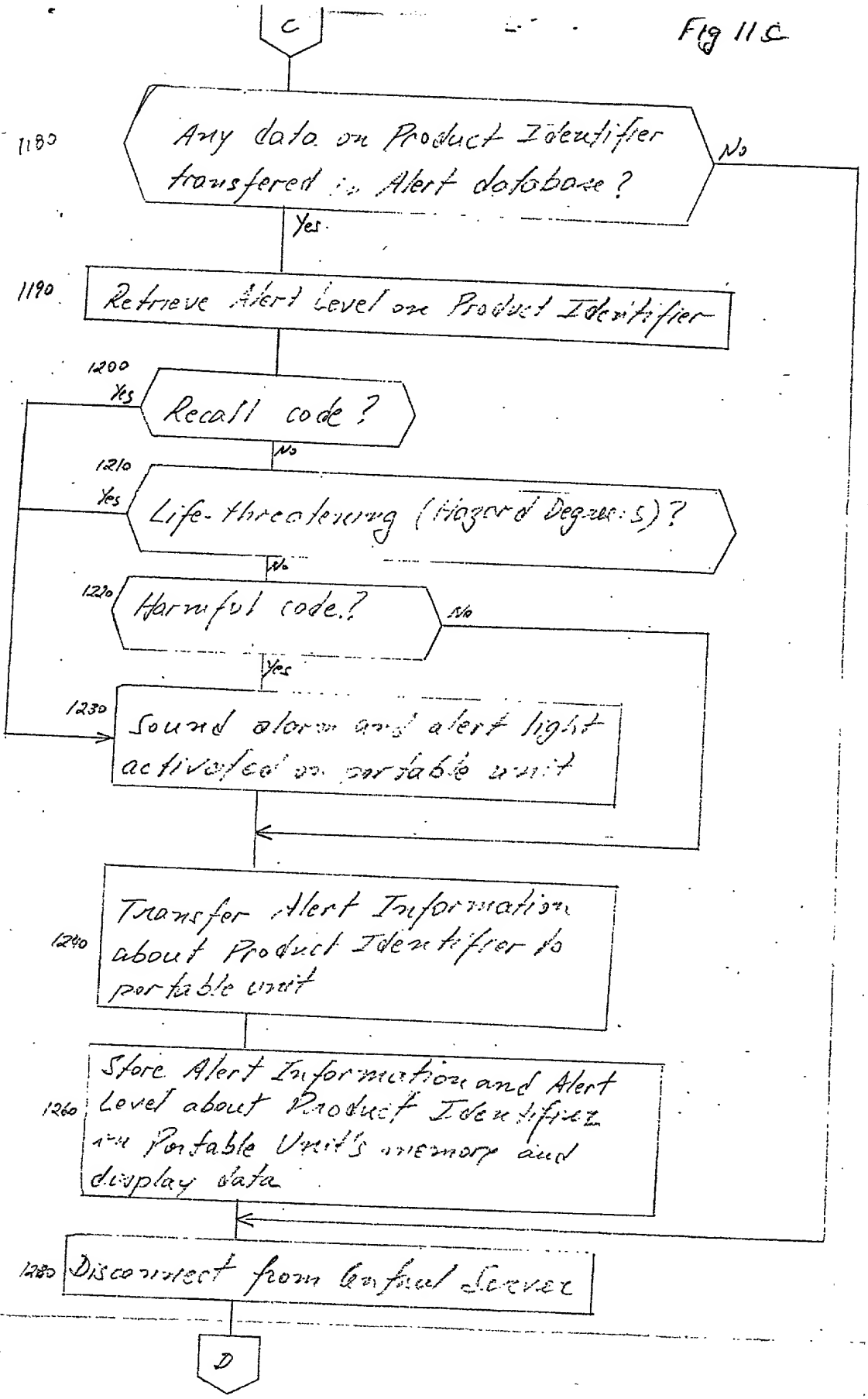

C
1180
Any data on Product Identifier transfered in Alert database?
No
Yes
1190
Retrieve Alert Level on Product Identifier
1200
Yes
Recall code?
No
1210
Yes
Life-threatening (Hazard Degree: 5)?
No
1220
Harmful code?
No
Yes
1230
Sound alarm and alert light activated on portable unit
1240
Transfer Alert Information about Product Identifier to portable unit
1260
Store Alert Information and Alert Level about Product Identifier in Portable Unit's memory and display data
1280
Disconnect from Central Server
D

Fig 11D

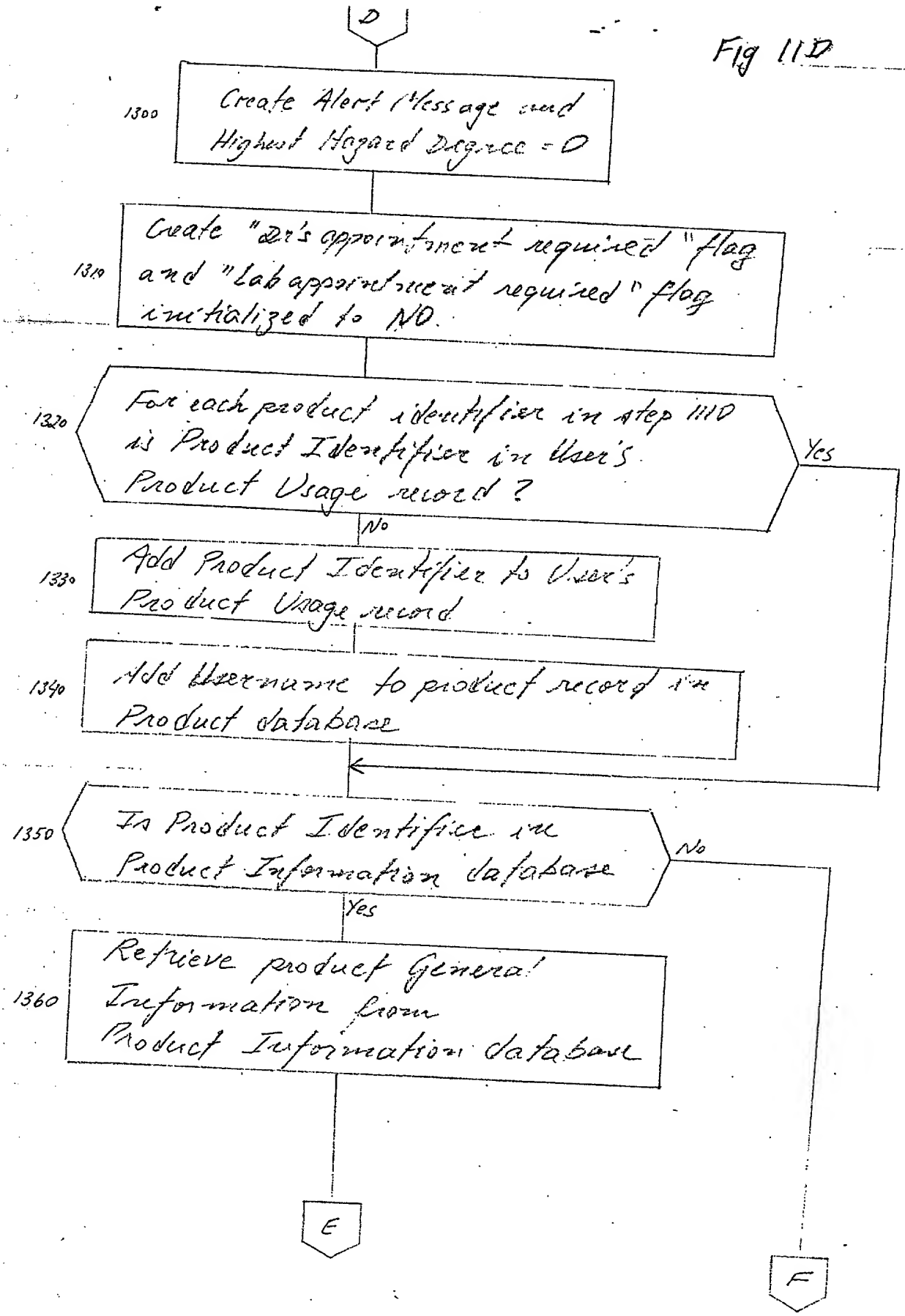

D
1300
Create Alert Message and Highest Hazard Degree = 0
1310
Create "Dr's appointment required" flag and "Lab appointment required" flag initialized to NO.
1320
For each product identifier in step 1110 is Product Identifier in User's Product Usage record?
Yes
No
1330
Add Product Identifier to User's Product Usage record
1340
Add Username to product record in Product database
1350
Is Product Identifier in Product Information database
No
Yes
1360
Retrieve product General Information from Product Information database
E
F

Fig 11E

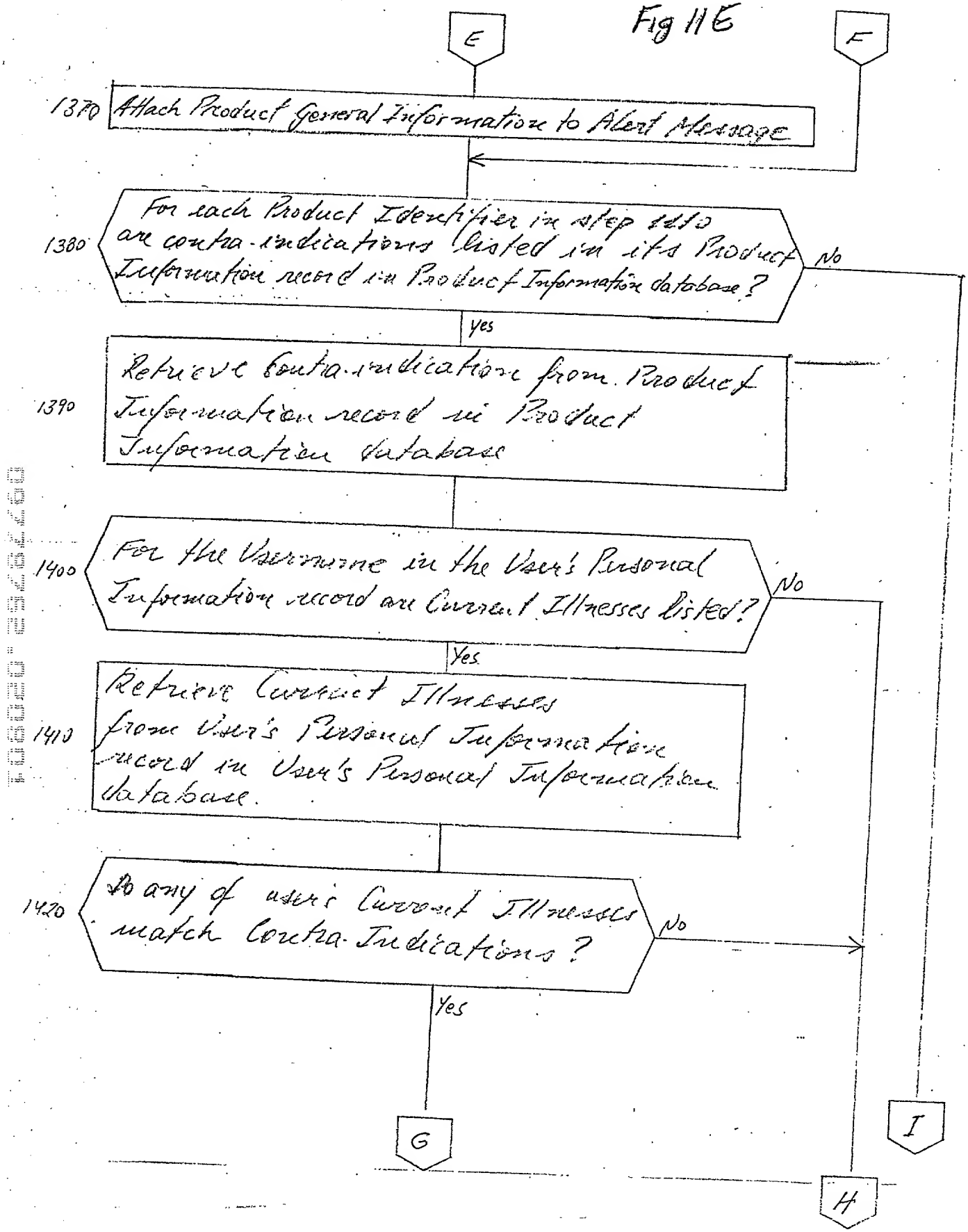

E
F
1370
Attach Product General Information to Alert Message
1380
For each Product Identifier in step 1310 are contra-indications listed in its Product Information record in Product Information database?
No
Yes
1390
Retrieve contra-indications from Product Information record in Product Information database
1400
For the Username in the User's Personal Information record are Current Illnesses listed?
No
Yes
1410
Retrieve Current Illnesses from User's Personal Information record in User's Personal Information database.
1420
Do any of user's Current Illnesses match Contra-Indications?
No
Yes
G
H
I

Fig 11F

G

I

H

1430 Attach to Alert Message that product is contra-indicated for user's Current Illnesses

1440 If "Dr's Appointment Required" of Contra-indication in Product Information database is Yes then "Dr's Appointment Required" equals Yes

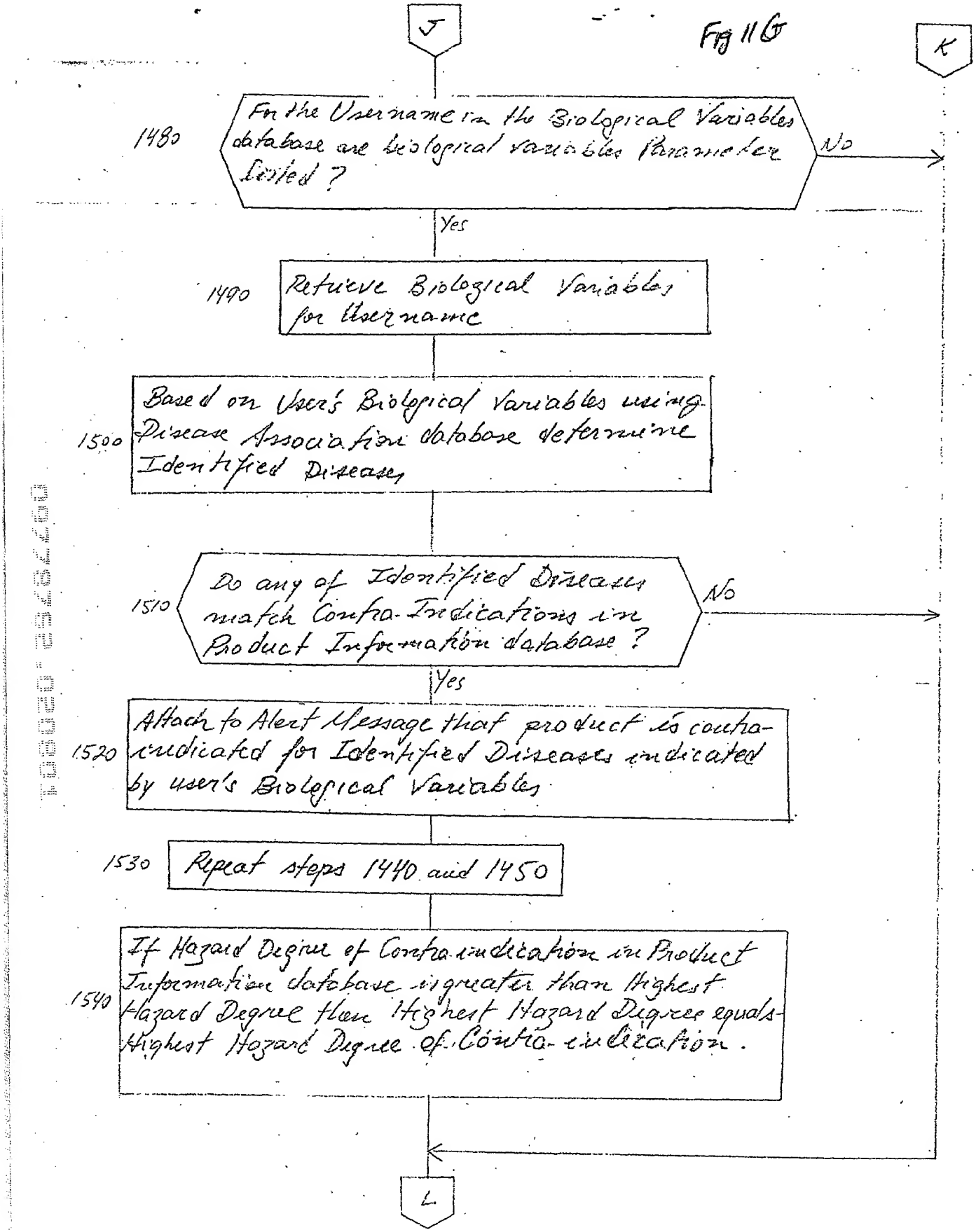
1450 If "Lab Appointment Required" of Contra-indication in Product Information database is Yes then "Lab Appointment Required equals Yes

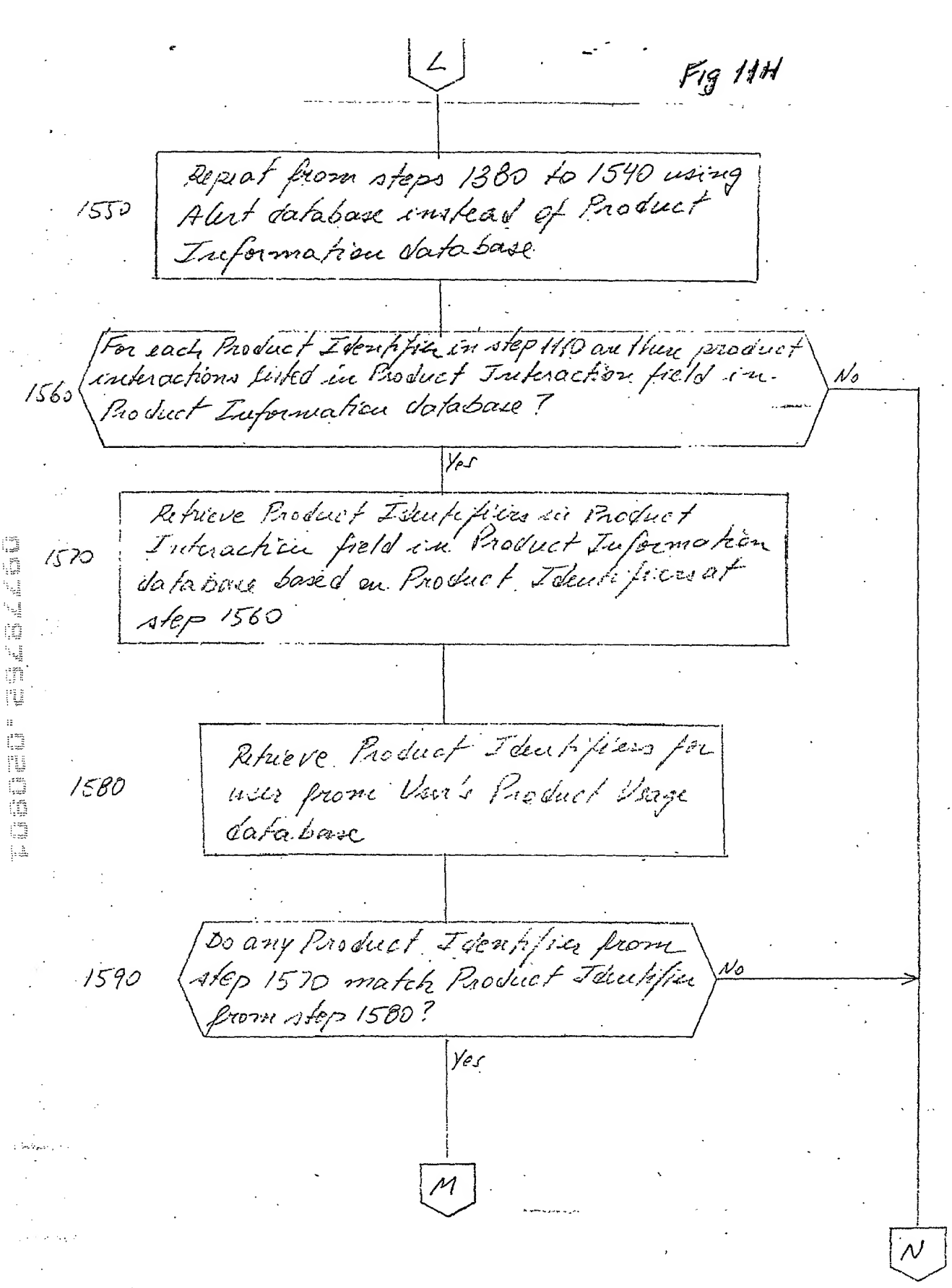
1460 If Hazard Degree of Contra-Indication in Product Information database is greater than Highest Hazard Degree then Highest Hazard degree equals Hazard Degree of Contra-indication

J

K

Fig 11G


J
K
1480
For the Username in the Biological Variables database are biological variables parameter listed ?
No
Yes
1490
Retrieve Biological Variables for Username
1500
Based on User's Biological Variables using Disease Association database determine Identified Diseases
1510
Do any of Identified Diseases match Contra-Indications in Product Information database ?
No
Yes
1520
Attach to Alert Message that product is contra-indicated for Identified Diseases indicated by user's Biological Variables
1530
Repeat steps 1440 and 1450
1540
If Hazard Degree of Contra-indication in Product Information database is greater than Highest Hazard Degree then Highest Hazard Degree equals Highest Hazard Degree of Contra-indication.
L


L
Fig 11H
1550
Repeat from steps 1380 to 1540 using Alert database instead of Product Information database
1560
For each Product Identifier in step 1110 are there product interactions listed in Product Interaction field in Product Information database ?
No
Yes
1570
Retrieve Product Identifiers in Product Interaction field in Product Information database based on Product Identifiers at step 1560
1580
Retrieve Product Identifiers for user from User's Product Usage database
1590
Do any Product Identifiers from step 1570 match Product Identifiers from step 1580?
No
Yes
M
N

M

N

1600 Retrieve Product Interaction Warning Message from Product Interaction field in Product Information database based on Product Identifier from step 1560 and Product Identifier from match at step 1590

1610 Attach to Alert Message Interaction warning Message

1620 If "Drs Appointment Required" of Interaction Warning Message equals Yes then "Drs Appointment Required" equals Yes

1630 If "Lab Appointment Required" of Interaction Warning Message equals Yes then "Lab Appointment Required" equals Yes

1640 If Hazard Degree of Interaction Warning Message is greater than Highest Hazard Degree then Highest Hazard Degree equals Hazard Degree of Interaction Warning Message

O

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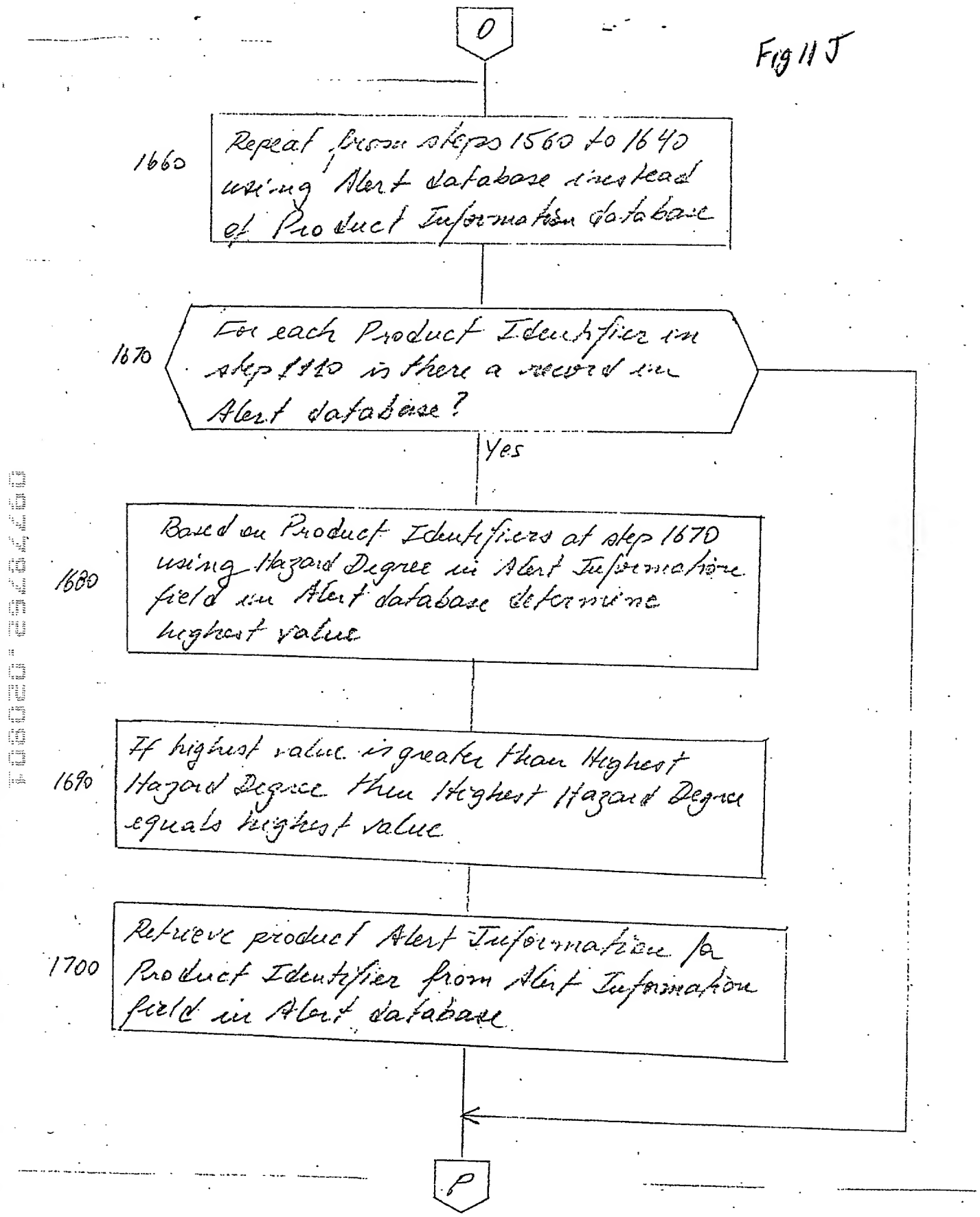

O
Fig 11 J
1660
Repeat from steps 1560 to 1640 using Alert database instead of Product Information database
1670
For each Product Identifier in step 1610 is there a record in Alert database?
Yes
1680
Based on Product Identifiers at step 1670 using Hazard Degree in Alert Information field in Alert database determine highest value
1690
If highest value is greater than Highest Hazard Degree then Highest Hazard Degree equals highest value
1700
Retrieve product Alert Information for Product Identifier from Alert Information field in Alert database
P

Fig 11K

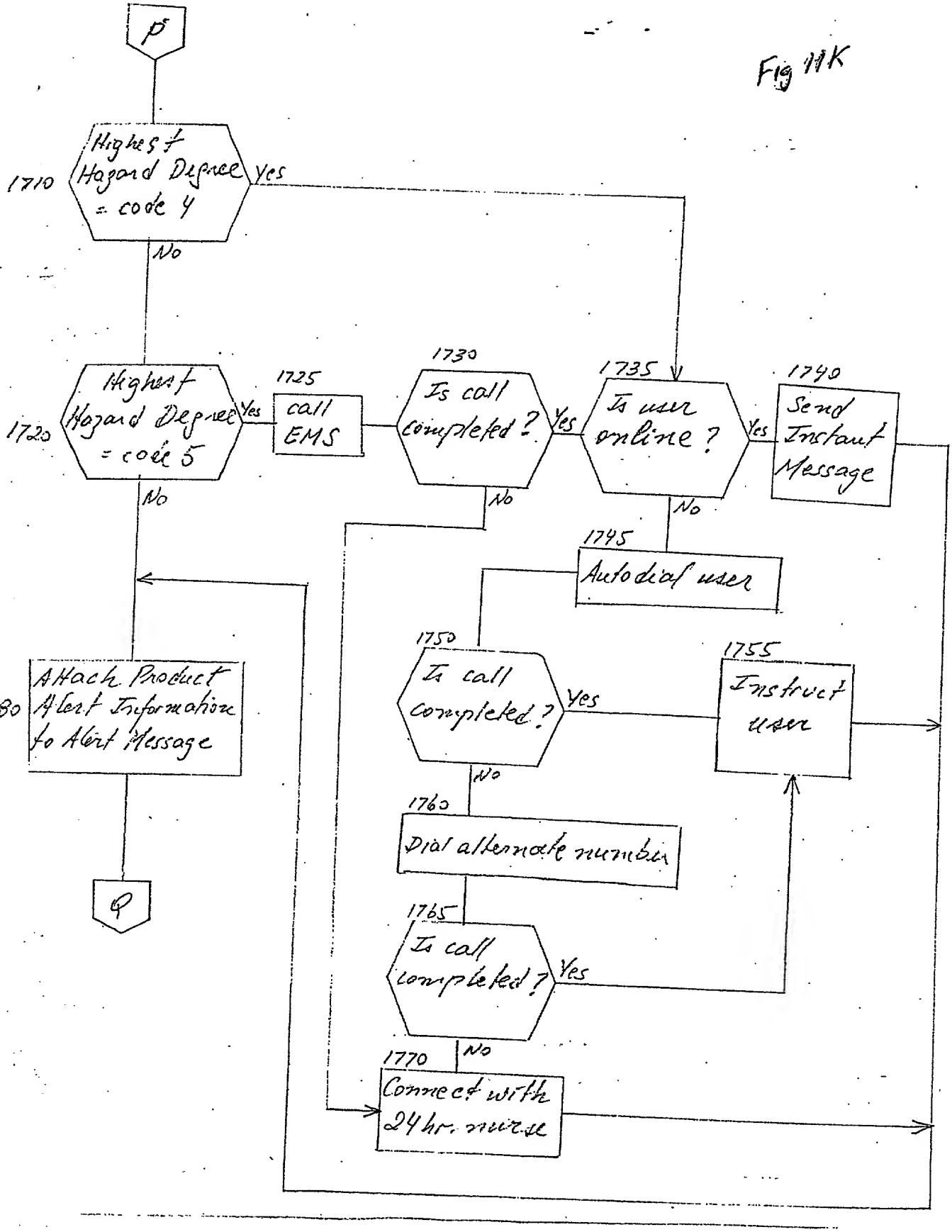

P
1710
Highest Hazard Degree = code 4
Yes
No
1720
Highest Hazard Degree = code 5
Yes
1725
call EMS
1730
Is call completed?
Yes
No
1735
Is user online?
Yes
No
1740
Send Instant Message
1745
Autodial user
1750
Is call completed?
Yes
No
1755
Instruct user
1760
Dial alternate number
1765
Is call completed?
Yes
No
1770
Connect with 24 hr. nurse
1780
Attach Product Alert Information to Alert Message
Q

Fig 11

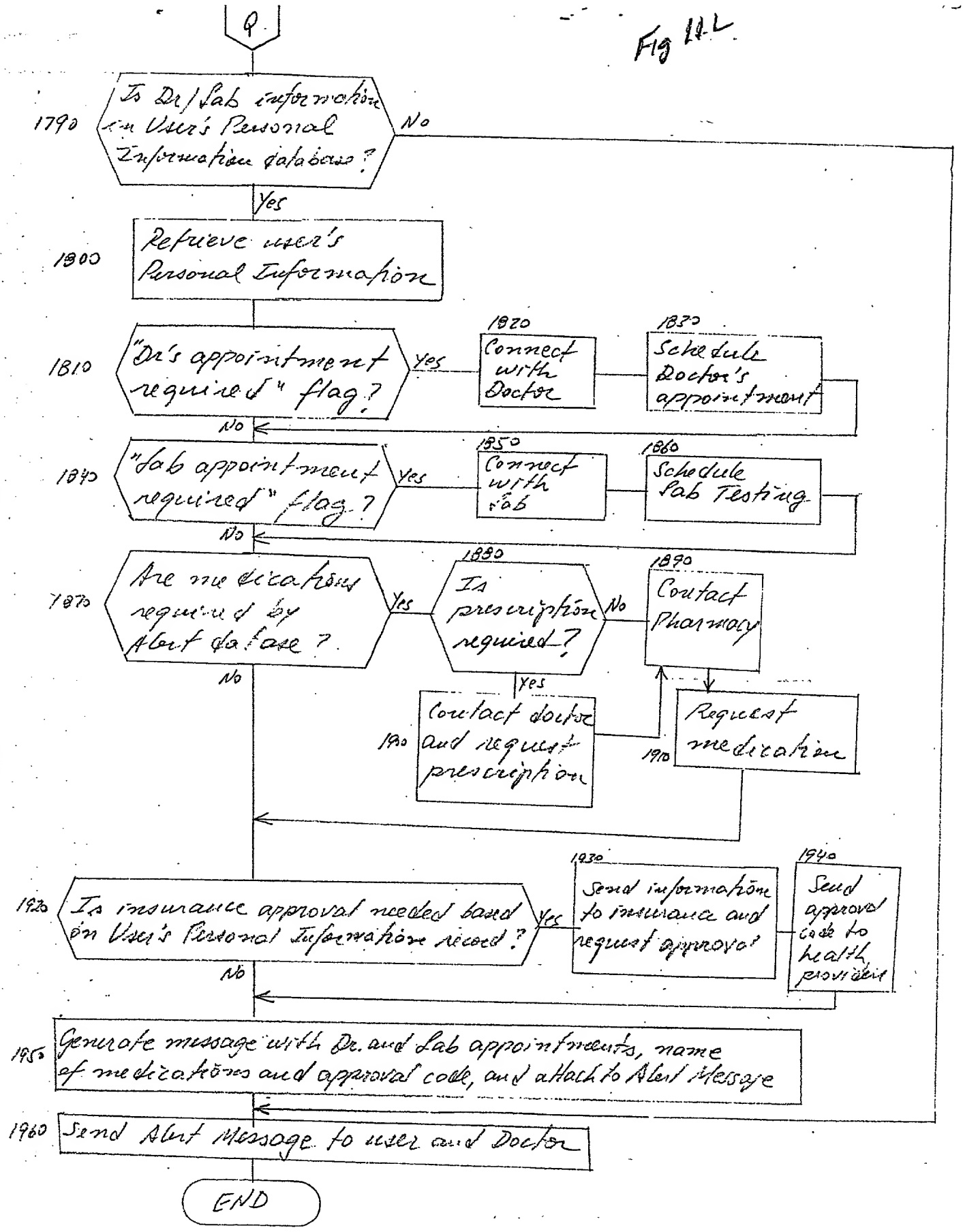

Q
1790
Is Dr/Lab information in User's Personal Information database?
No
Yes
1800
Retrieve user's Personal Information
1810
"Dr's appointment required" flag?
Yes
1820
Connect with Doctor
1830
Schedule Doctor's appointment
No
1840
"Lab appointment required" flag?
Yes
1850
Connect with Lab
1860
Schedule Lab Testing
No
1870
Are medications required by Alert database?
Yes
1880
Is prescription required?
No
1890
Contact Pharmacy
No
Yes
1900
Contact doctor and request prescription
1910
Request medication
1920
Is insurance approval needed based on User's Personal Information record?
Yes
1930
Send information to insurance and request approval
1940
Send approval code to health provider
No
1950
Generate message with Dr. and Lab appointments, name of medications and approval code, and attach to Alert Message
1960
Send Alert Message to user and Doctor
END

Fig 12A

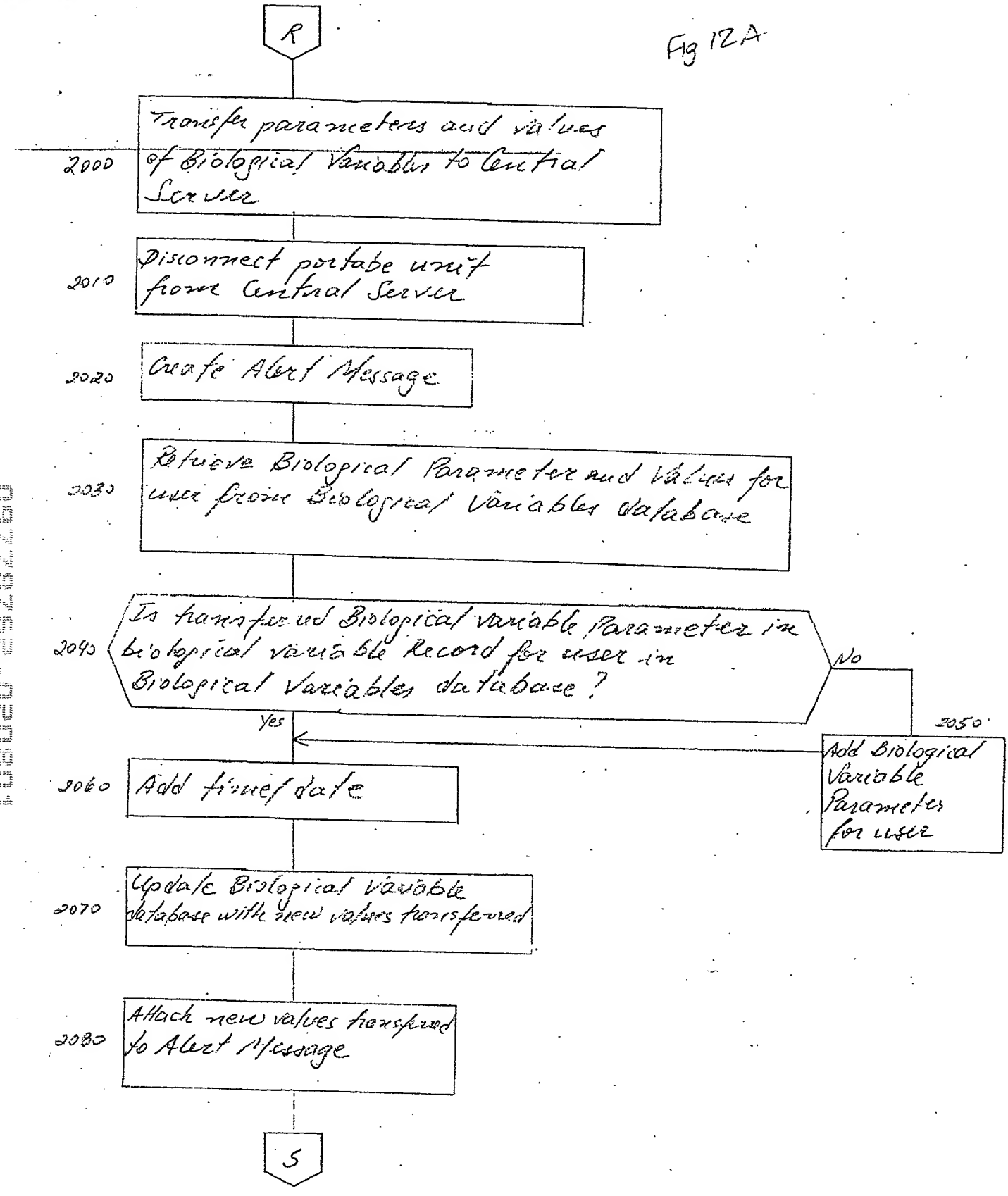

R
2000
Transfer parameters and values of Biological Variable to Central Server
2010
Disconnect portable unit from Central Server
2020
Create Alert Message
2030
Retrieve Biological Parameter and Values for user from Biological Variables database
2040
Is transferred Biological variable Parameter in biological variable Record for user in Biological Variables database?
No
Yes
2050
Add Biological Variable Parameter for user
2060
Add time/date
2070
Update Biological Variable database with new values transferred
2080
Attach new values transferred to Alert Message
S

Fig 12B

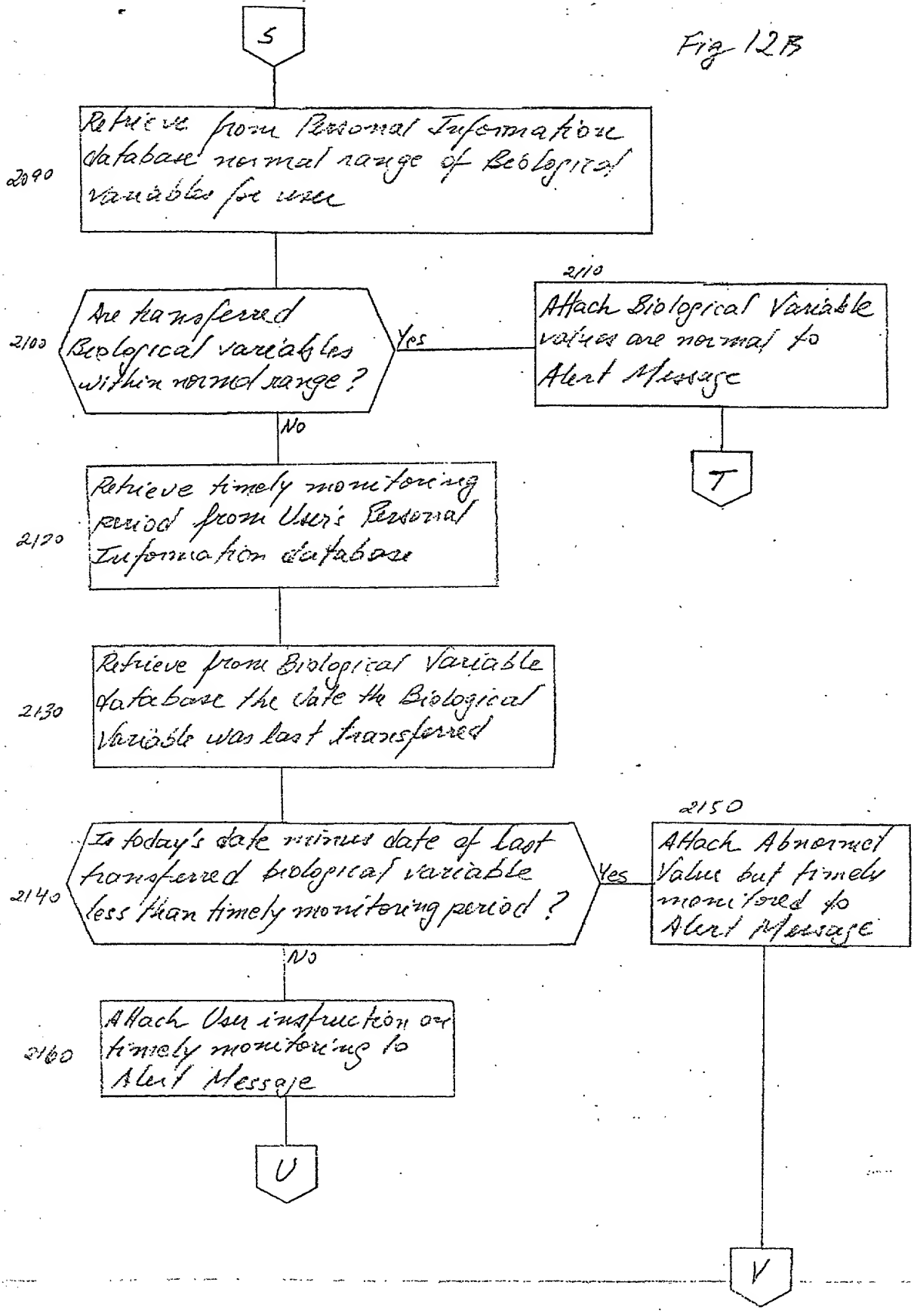

5
2090
Retrieve from Personal Information database normal range of Biological variable for user
2100
Are transferred Biological variables within normal range?
Yes
2110
Attach Biological Variable values are normal to Alert Message
T
No
2120
Retrieve timely monitoring period from User's Personal Information database
2130
Retrieve from Biological Variable database the date the Biological Variable was last transferred
2140
Is today's date minus date of last transferred biological variable less than timely monitoring period?
Yes
2150
Attach Abnormal Value but timely monitored to Alert Message
No
2160
Attach User instruction on timely monitoring to Alert Message
U
V

Fig-22C

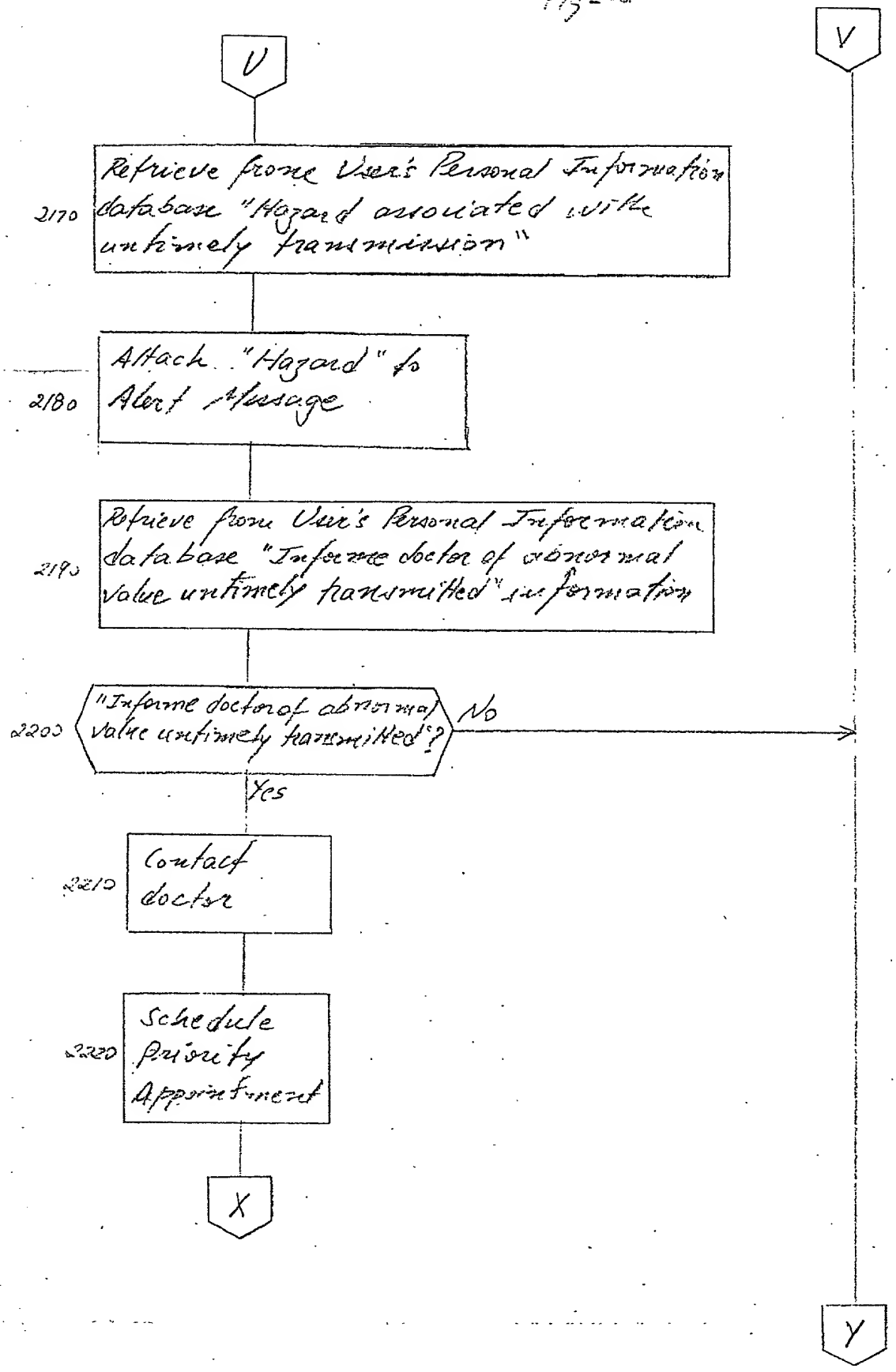

V
V
Retrieve from User's Personal Information database "Hazard associated with untimely transmission"
2170
Attach "Hazard" to Alert Message
2180
Retrieve from User's Personal Information database "Inform doctor of abnormal value untimely transmitted" information
2190
"Inform doctor of abnormal value untimely transmitted"?
2200
No
Yes
Contact doctor
2210
Schedule Priority Appointment
2220
X
Y

Fig 12D

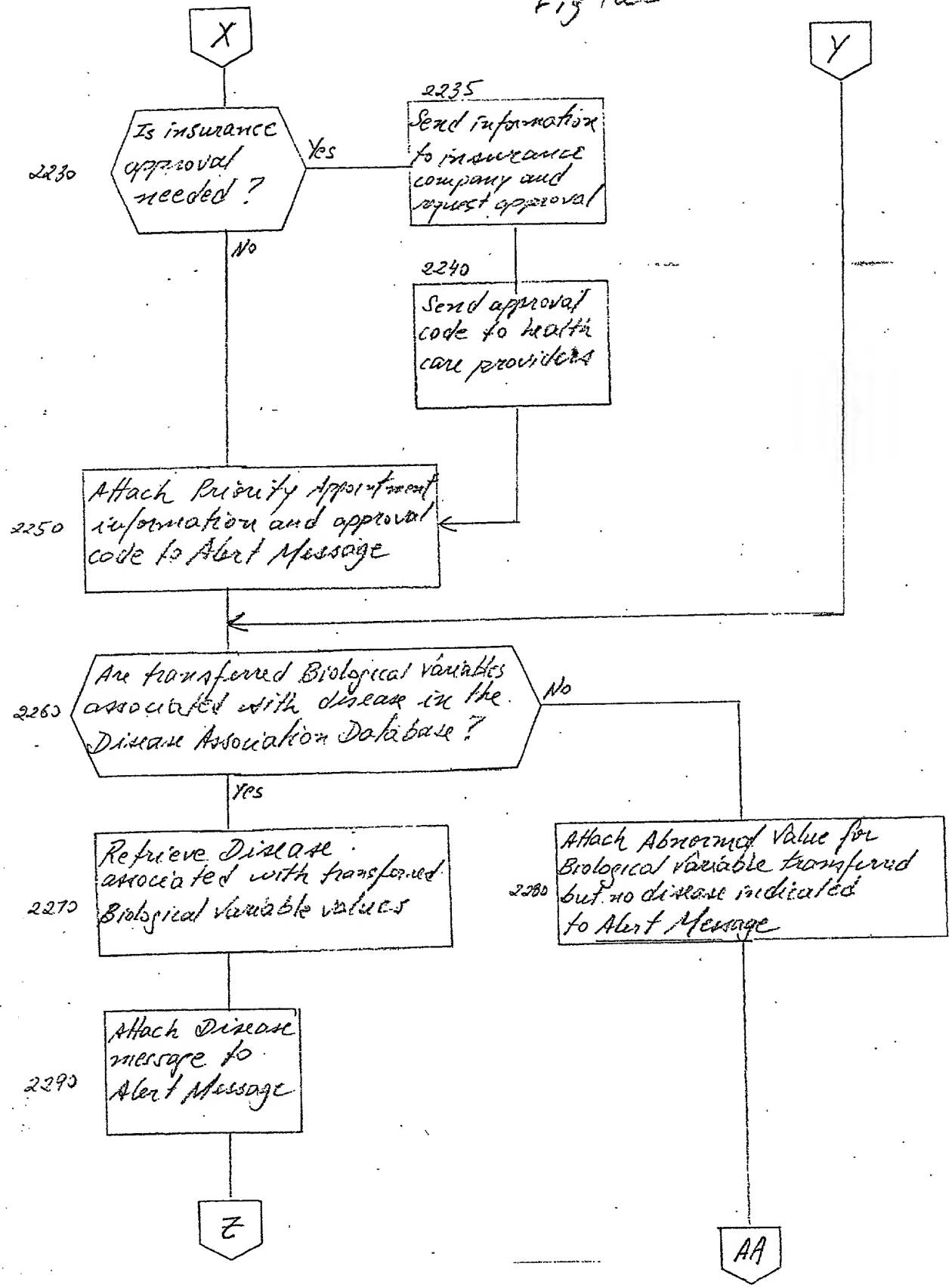

X
Y
2230
Is insurance approval needed?
Yes
No
2235
Send information to insurance company and request approval
2240
Send approval code to health care provider
2250
Attach Priority Appointment information and approval code to Alert Message
2260
Are transferred Biological variables associated with disease in the Disease Association Database?
No
Yes
2270
Retrieve Disease associated with transferred Biological Variable values
2280
Attach Abnormal Value for Biological Variable transferred but no disease indicated to Alert Message
2290
Attach Disease message to Alert Message
Z
AA

Fig 12E

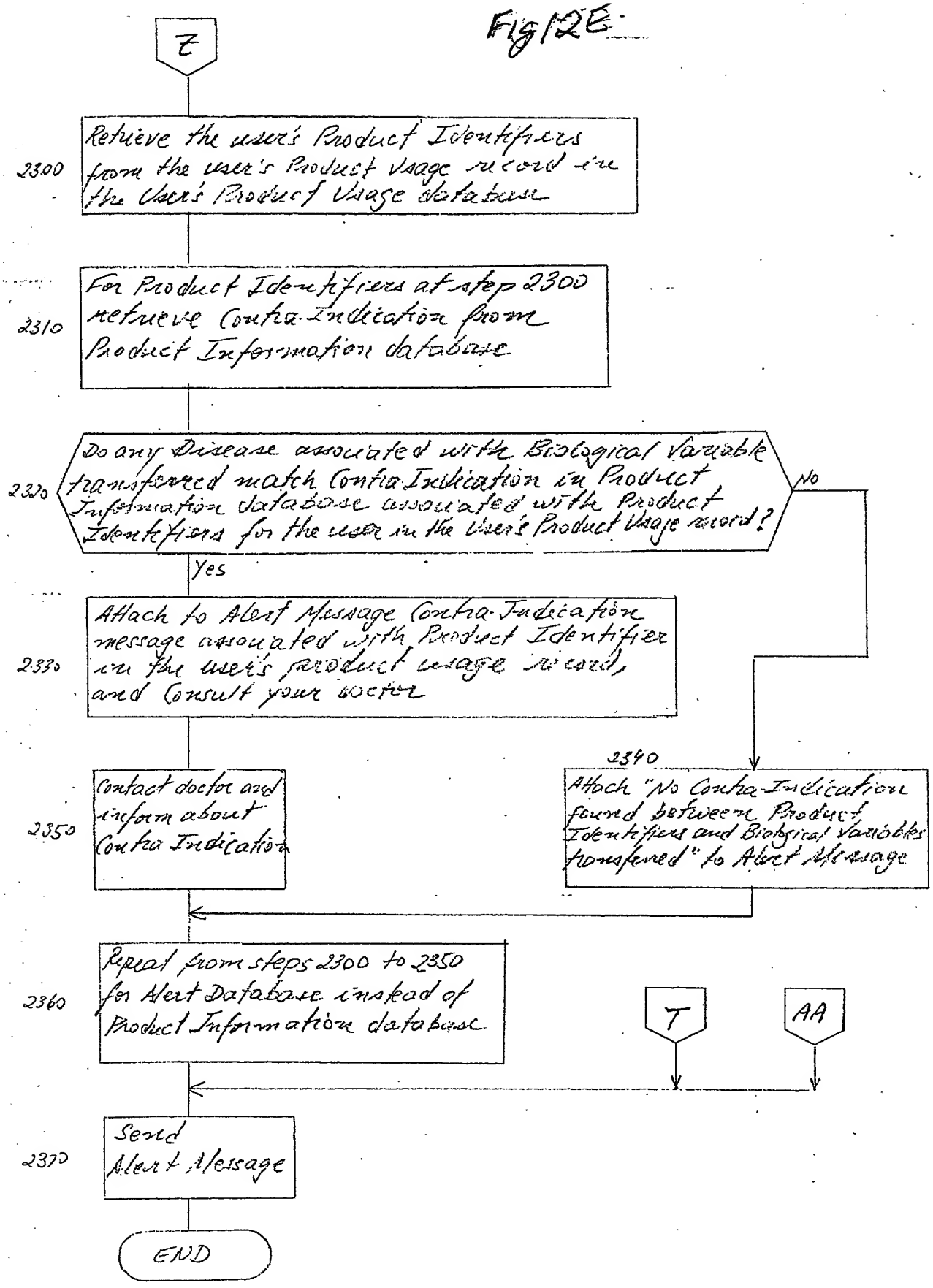

Z
2300
Retrieve the user's Product Identifiers from the user's Product Usage record in the User's Product Usage database
2310
For Product Identifiers at step 2300 retrieve Contra-Indication from Product Information database
2320
Do any Disease associated with Biological Variable transferred match Contra-Indication in Product Information database associated with the Product Identifiers for the user in the User's Product Usage record?
No
Yes
2330
Attach to Alert Message Contra-Indication message associated with Product Identifier in the user's product usage record, and Consult your doctor
2340
Attach "No Contra-Indication found between Product Identifiers and Biological Variables transferred" to Alert Message
2350
Contact doctor and inform about Contra Indication
2360
Repeat from steps 2300 to 2350 for Alert Database instead of Product Information database
T
AA
2370
Send Alert Message
END

Fig 13A

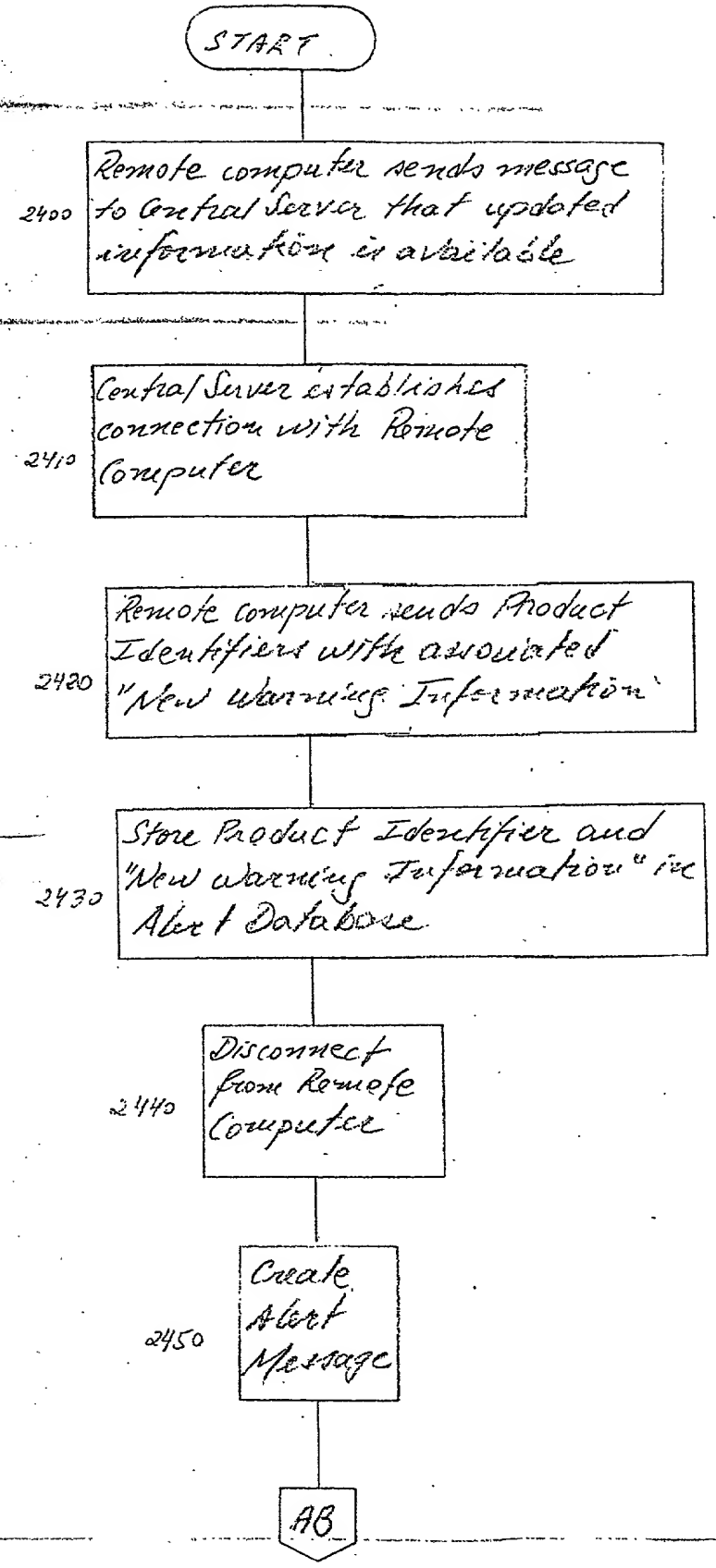

START
2400
Remote computer sends message to Central Server that updated information is available
2410
Central Server establishes connection with Remote Computer
2420
Remote computer sends Product Identifiers with associated "New Warning Information"
2430
Store Product Identifier and "New warning Information" in Alert Database
2440
Disconnect from Remote Computer
2450
Create Alert Message
AB

Fig 13B

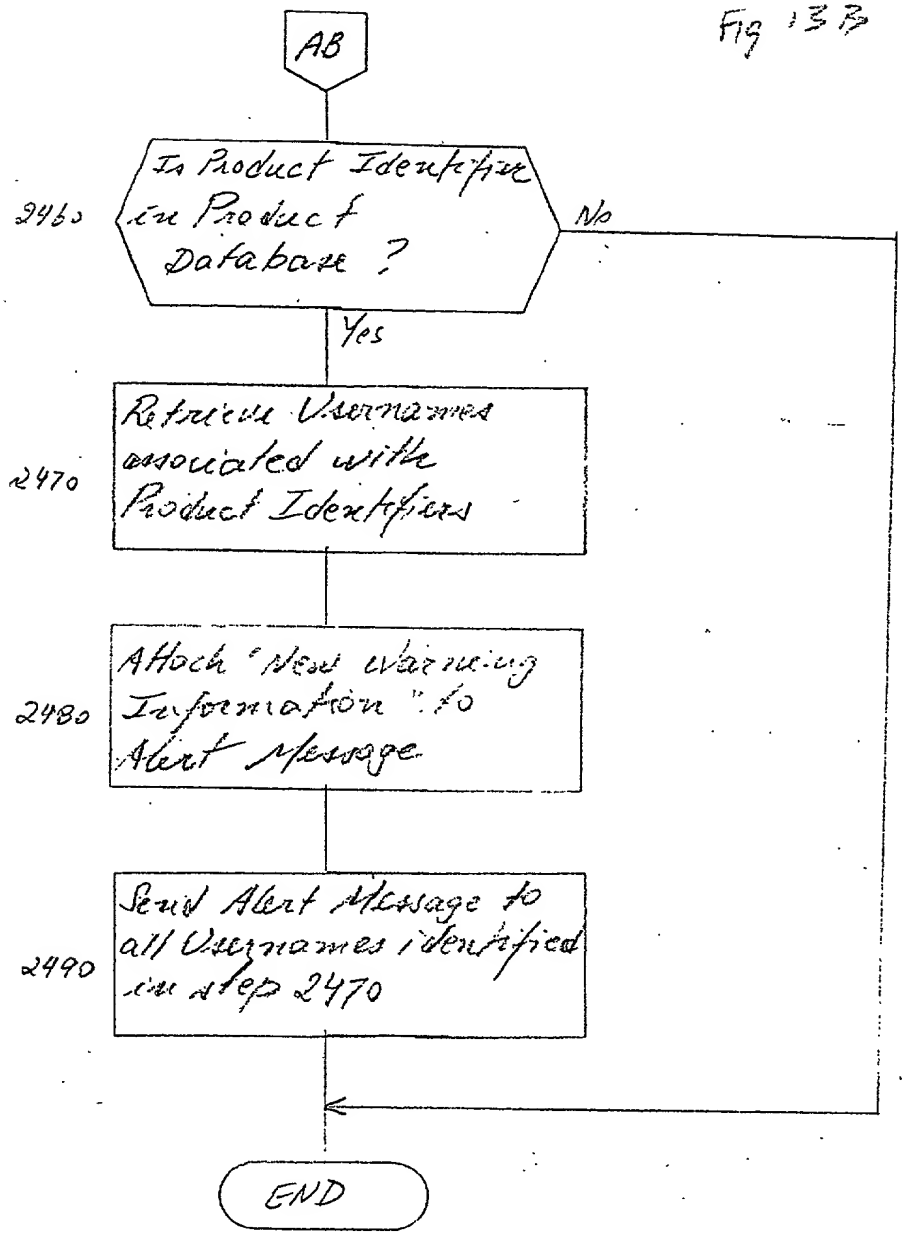

AB
Is Product Identifier in Product Database ?
2460
No
Yes
Retrieve Usernames associated with Product Identifiers
2470
Attach "New Warning Information" to Alert Message
2480
Send Alert Message to all Usernames identified in step 2470
2490
END

Fig 14A

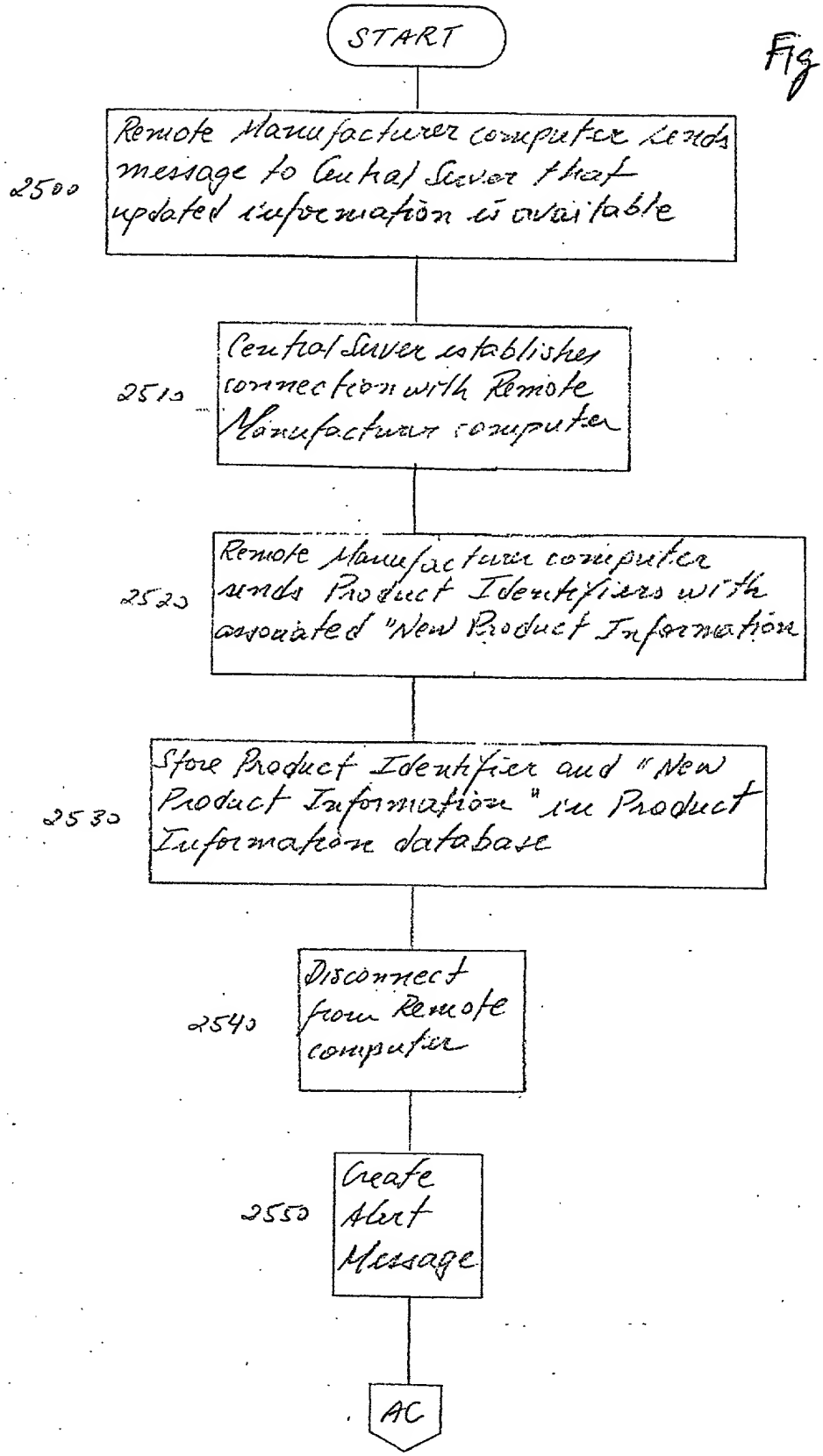

START
2500
Remote Manufacturer computer sends message to Central Server that updated information is available
2510
Central Server establishes connection with Remote Manufacturer computer
2520
Remote Manufacturer computer sends Product Identifiers with associated "New Product Information
2530
Store Product Identifier and "New Product Information" in Product Information database
2540
Disconnect from Remote computer
2550
Create Alert Message
AC

Fig 14B

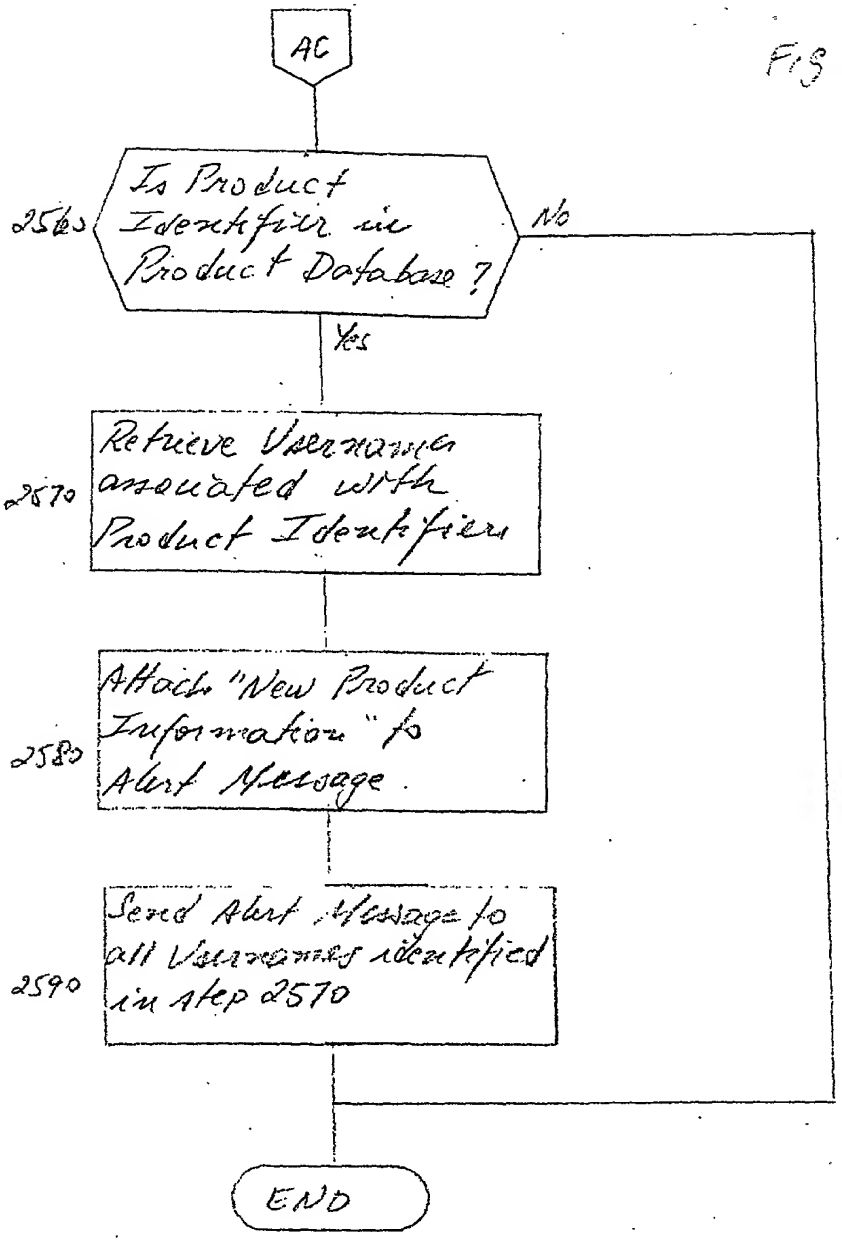

AC
2560
Is Product Identifier in Product Database ?
No
Yes
2570
Retrieve Usernames associated with Product Identifier
2580
Attach "New Product Information" to Alert Message
2590
Send Alert Message to all Usernames identified in step 2570
END

Fig 15A

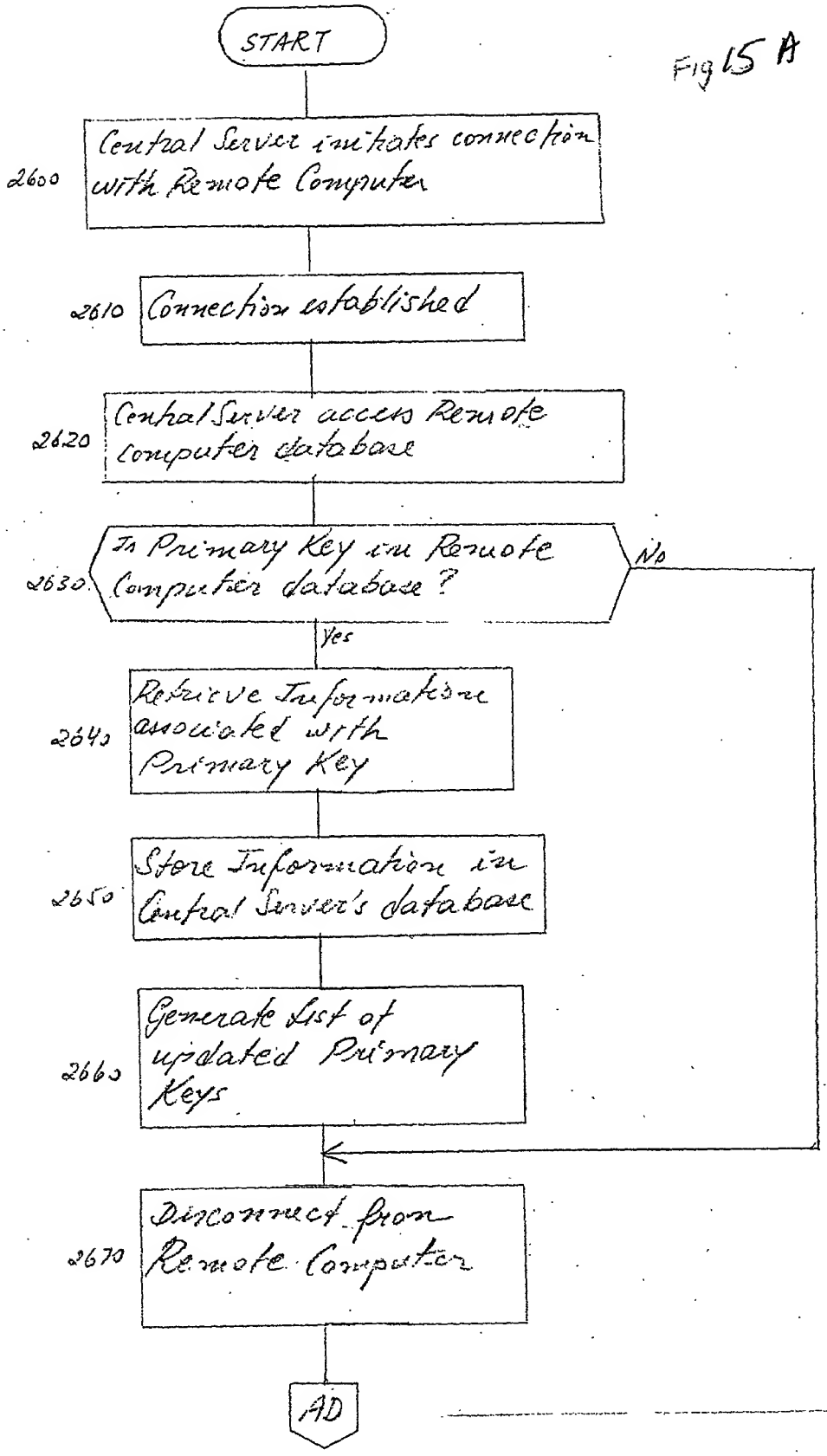

START
2600
Central Server initiates connection with Remote Computer
2610
Connection established
2620
Central Server access Remote computer database
2630
Is Primary Key in Remote Computer database?
No
Yes
2640
Retrieve Information associated with Primary Key
2650
Store Information in Central Server's database
2660
Generate list of updated Primary Keys
2670
Disconnect from Remote Computer
AD

Fig 15B

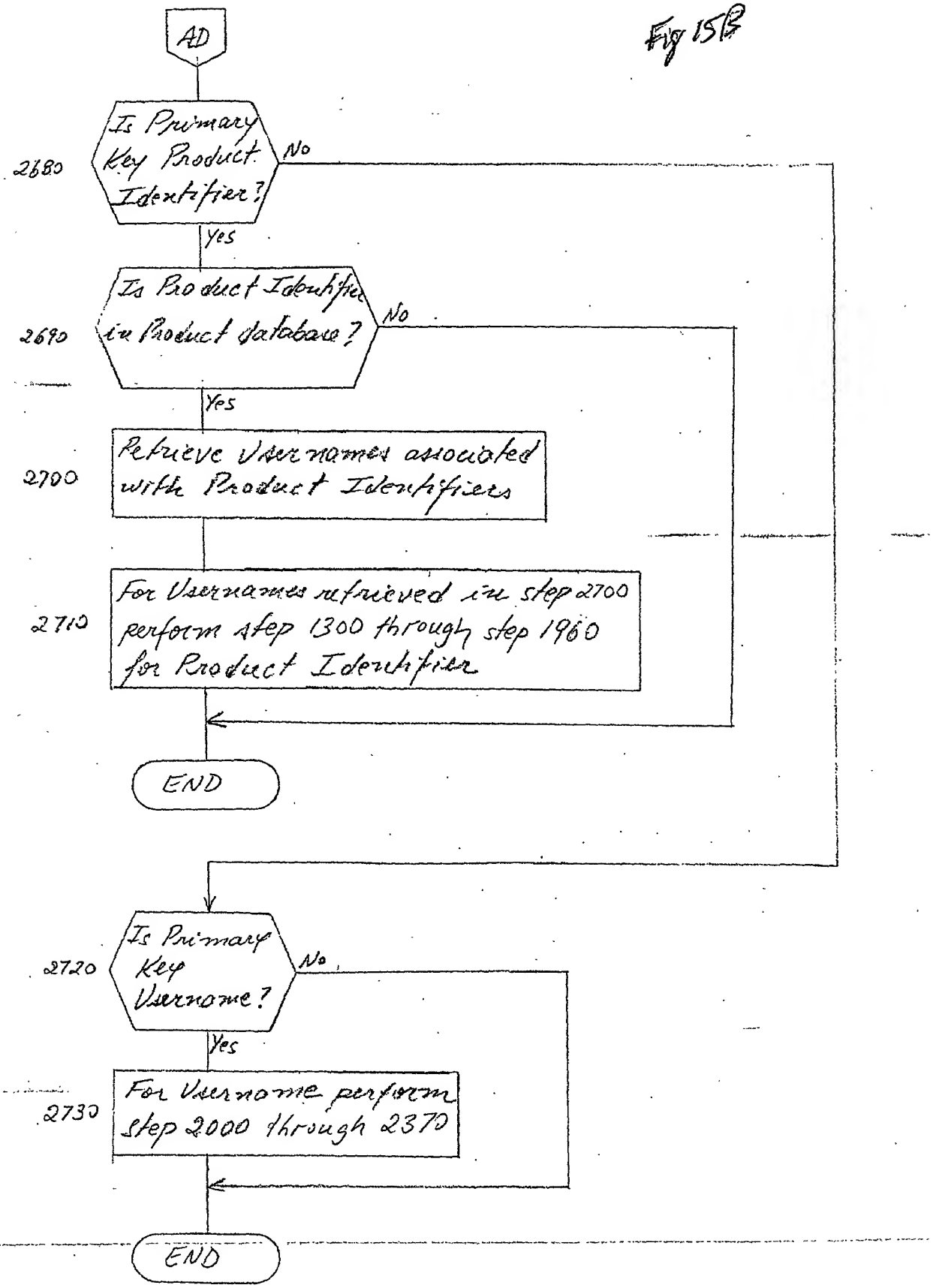

AD
Is Primary Key Product Identifier?
2680
No
Yes
Is Product Identifier in Product database?
2690
No
Yes
Retrieve Usernames associated with Product Identifiers
2700
For Usernames retrieved in step 2700 perform step 1300 through step 1960 for Product Identifier
2710
END
Is Primary Key Usernome?
2720
No
Yes
For Usernome perform step 2000 through 2370
2730
END

Fig 16

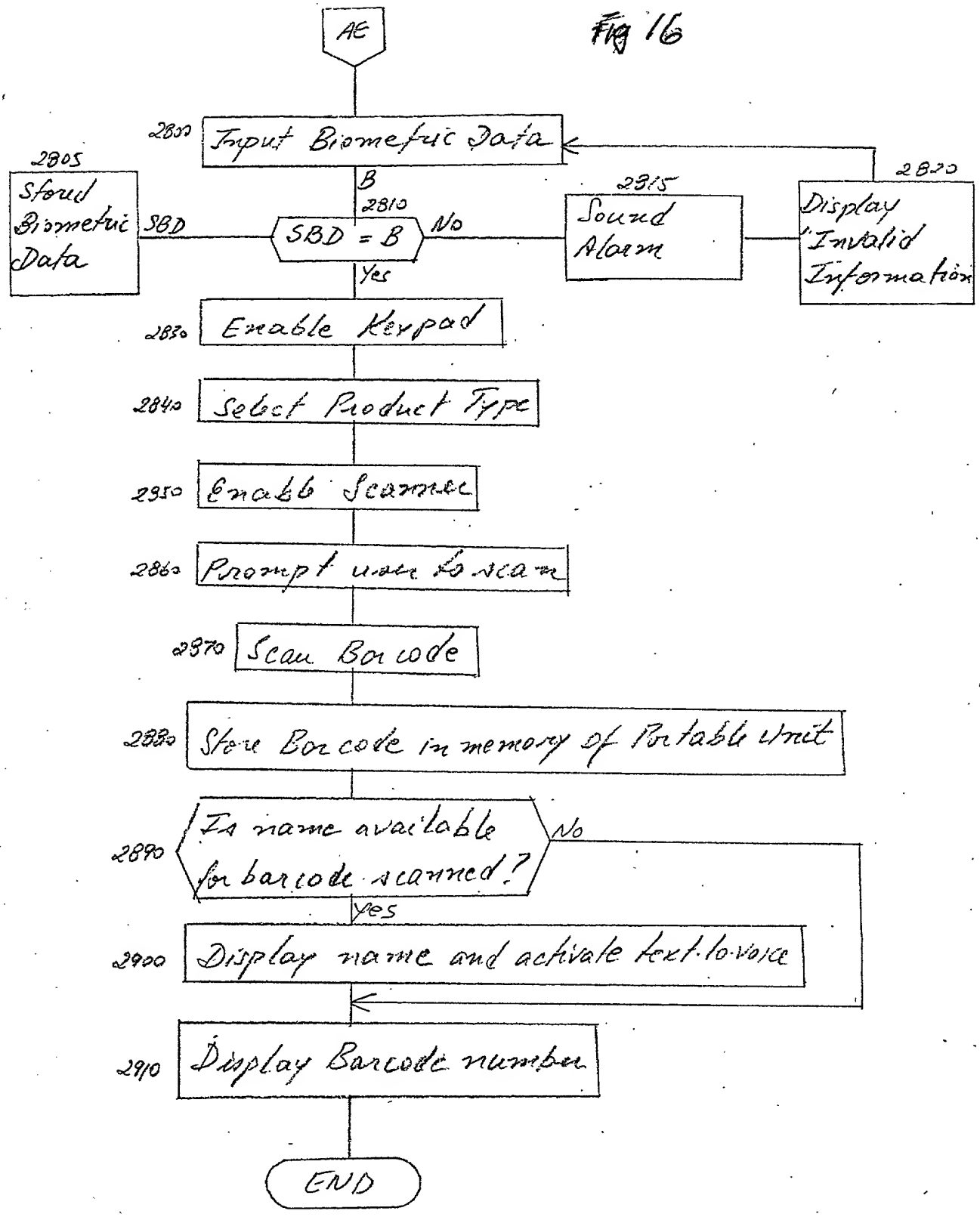
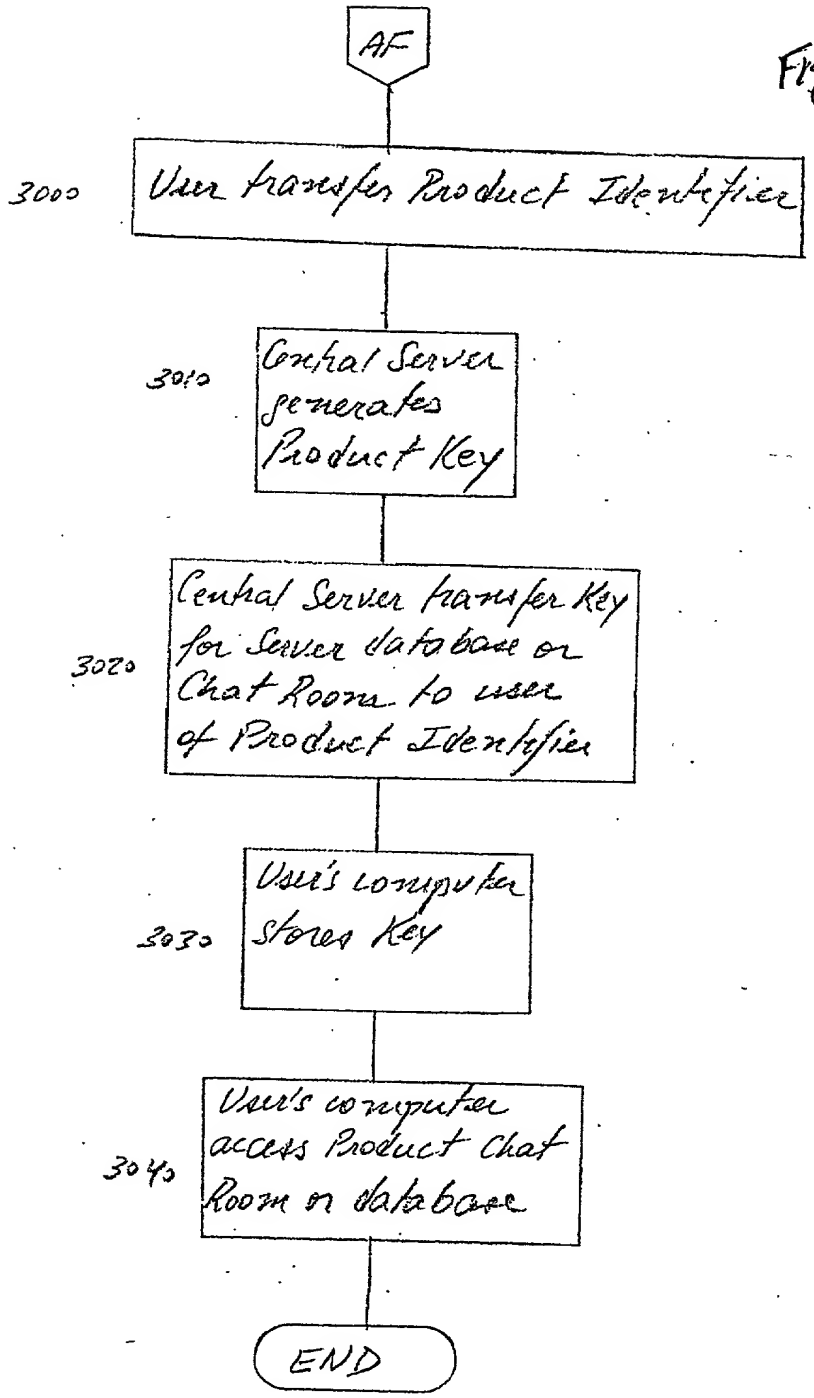

AE
2800
Input Biometric Data
2805
Stored Biometric Data
SBD
B
2810
SBD = B
No
Yes
2815
Sound Alarm
2820
Display "Invalid Information"
2830
Enable Keypad
2840
Select Product Type
2850
Enable Scanner
2860
Prompt user to scan
2870
Scan Barcode
2880
Store Barcode in memory of Portable Unit
2890
Is name available for barcode scanned?
No
Yes
2900
Display name and activate text-to-voice
2910
Display Barcode number
END

Fig 17A


AF
3000
User transfer Product Identifier
3010
Central Server generates Product Key
3020
Central Server transfer Key for Server database or Chat Room to user of Product Identifier
3030
User's computer stores Key
3040
User's computer access Product Chat Room or database
END

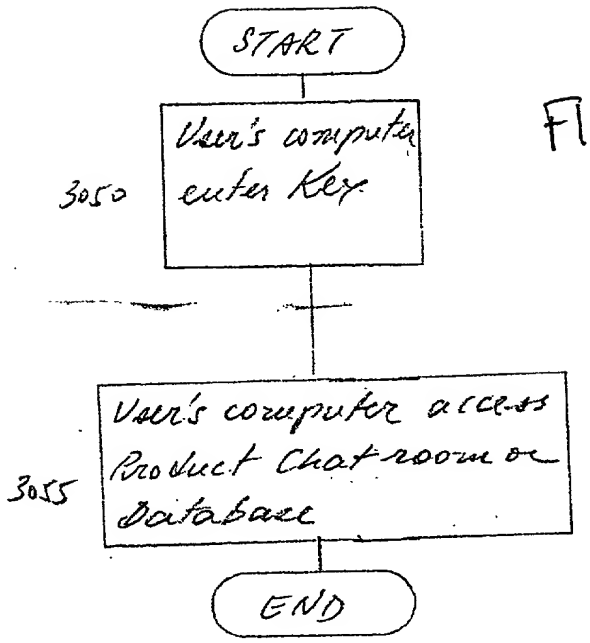


FIG 17B

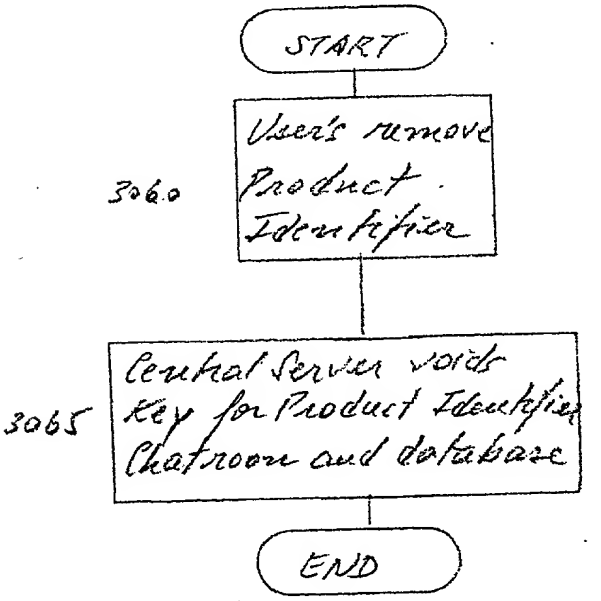


Fig. 17C

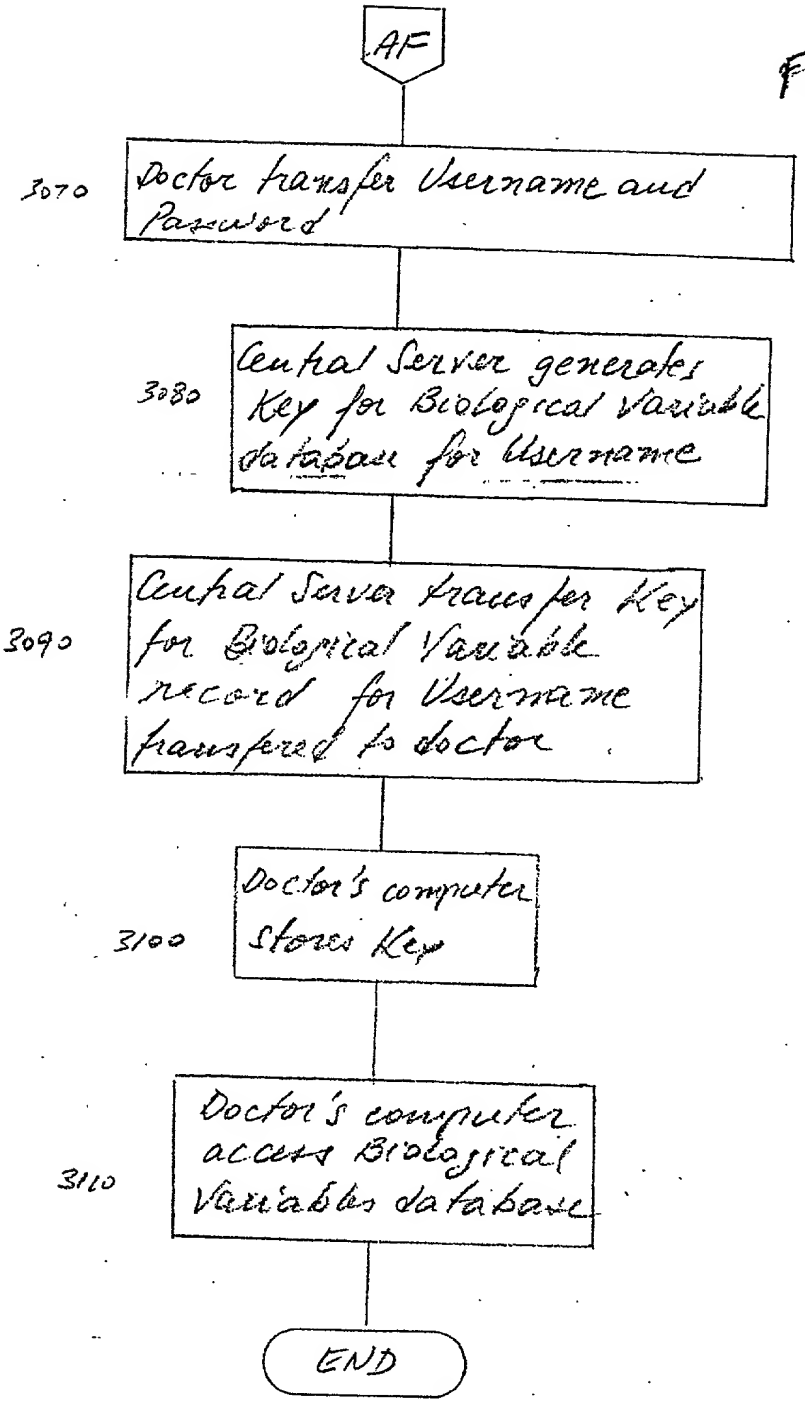

AF
3070
Doctor transfer Username and Password
3080
Central Server generates Key for Biological Variable database for Username
3090
Central Sever transfer Key for Biological Variable record for Username transfered to doctor
3100
Doctor's computer Stores Key
3110
Doctor's computer access Biological Variables database
END

Fig 18A

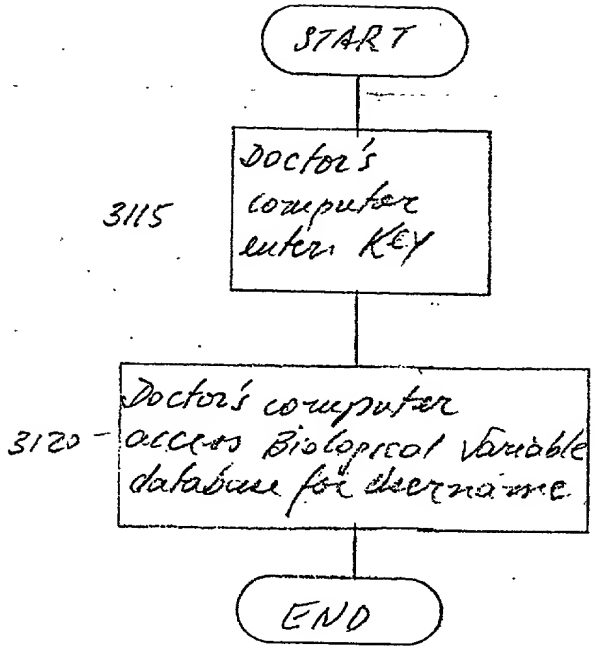


Fig. 18B

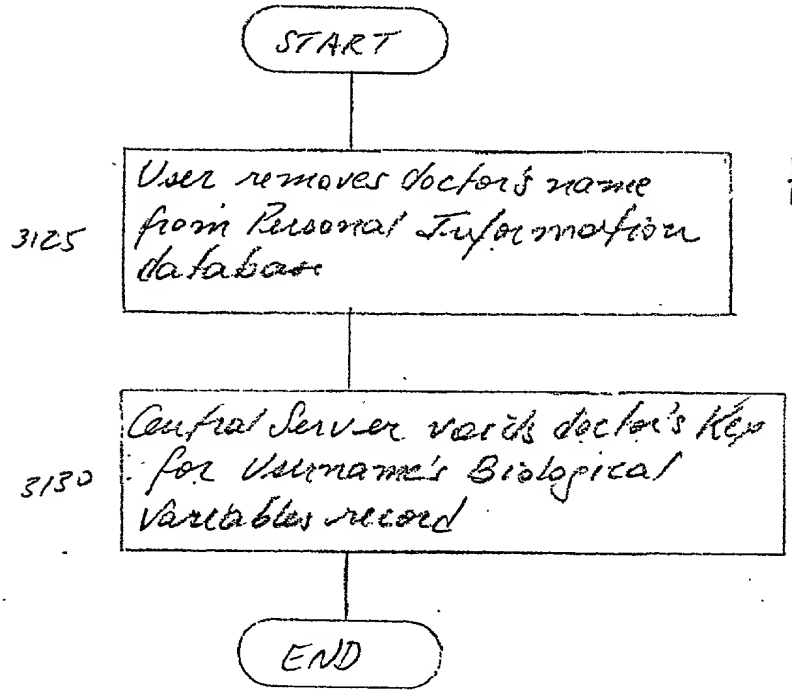


Fig 18C

Fig 19A

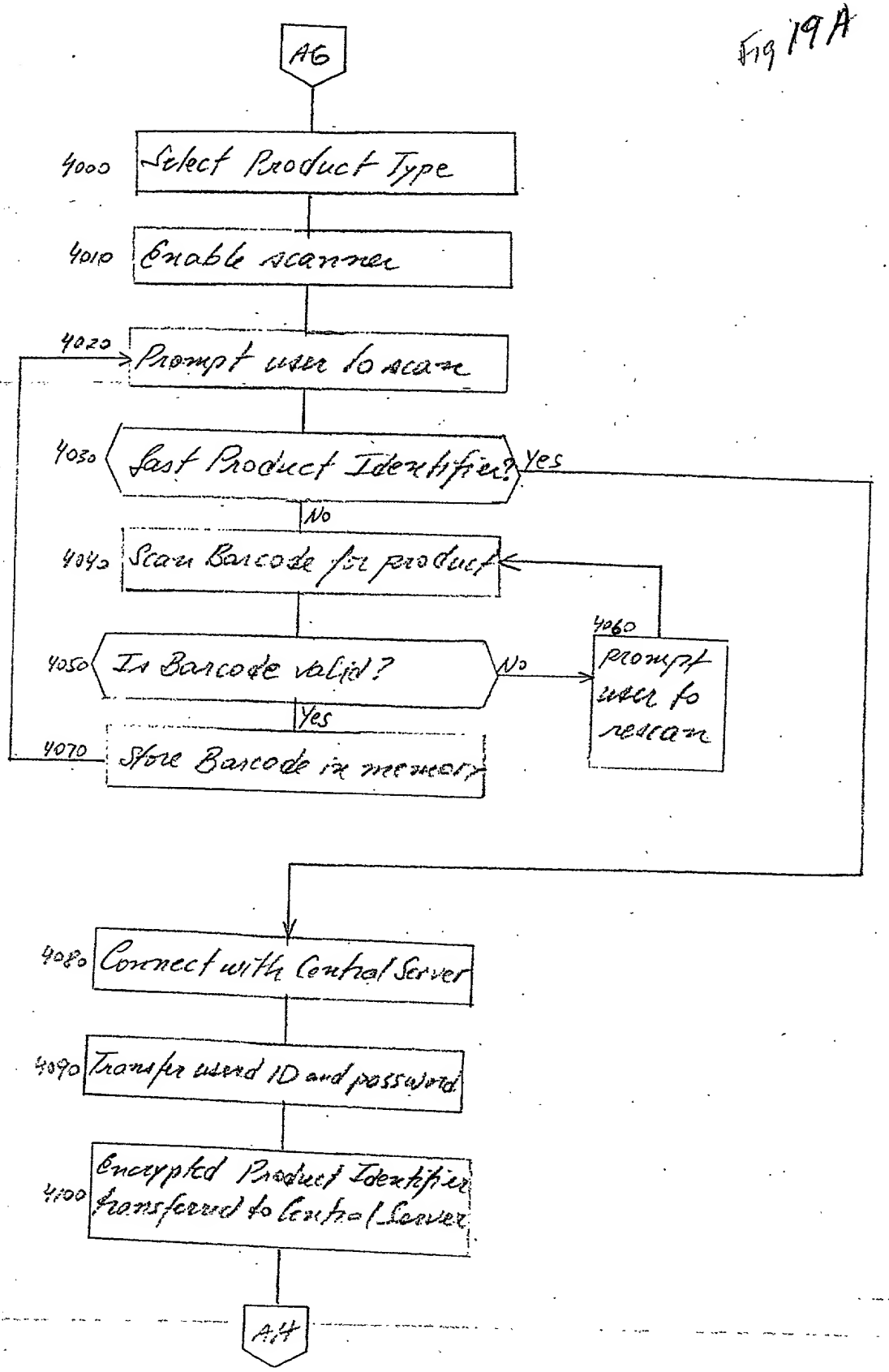

A6
4000 Select Product Type
4010 Enable scanner
4020 Prompt user to scan
4030 Last Product Identifier?
Yes
No
4040 Scan Barcode for product
4050 Is Barcode valid?
No
4060 prompt user to rescan
Yes
4070 Store Barcode in memory
4080 Connect with Central Server
4090 Transfer user ID and password
4100 Encrypted Product Identifier transferred to Central Server
A4

Fig 19B

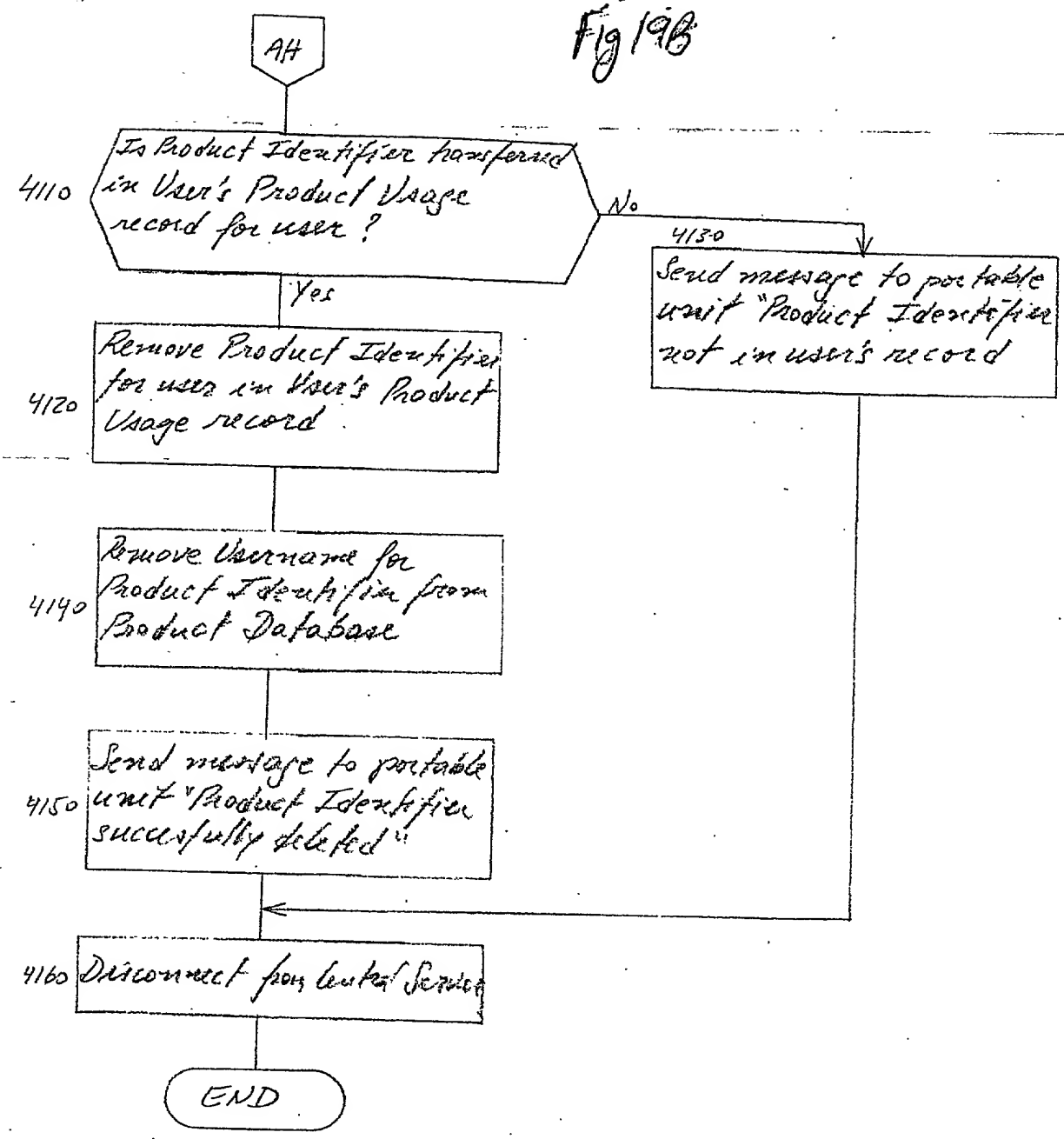
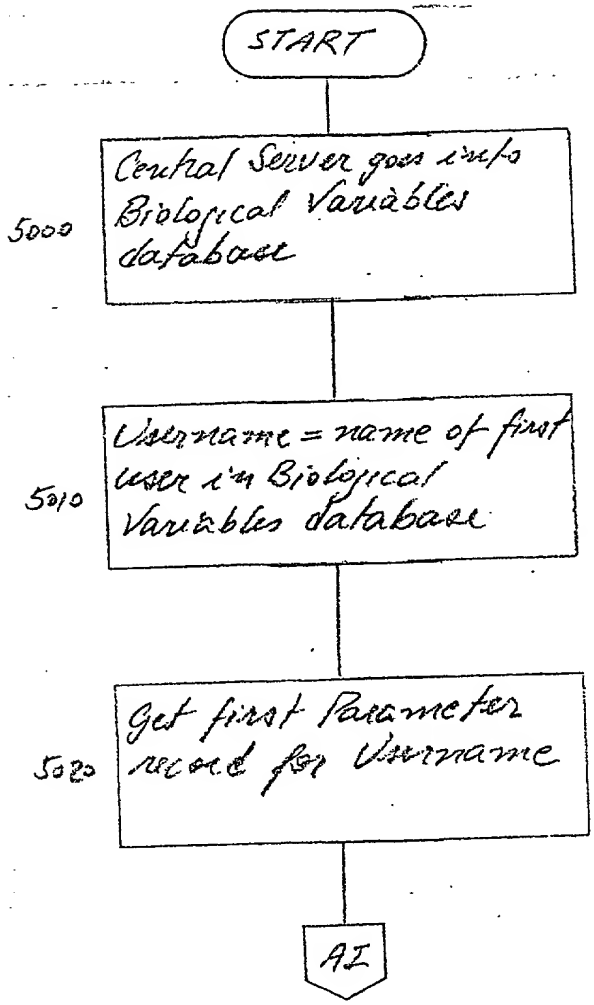

AH
4110
Is Product Identifier transferred in User's Product Usage record for user ?
No
Yes
4130
Send message to portable unit "Product Identifier not in user's record
4120
Remove Product Identifier for user in User's Product Usage record
4140
Remove Username for Product Identifier from Product Database
4150
Send message to portable unit "Product Identifier successfully deleted"
4160
Disconnect from Central Service
END

Fig 20A


START
5000
Central Server goes into Biological Variables database
5010
Username = name of first user in Biological Variables database
5020
Get first Parameter record for Username
A1

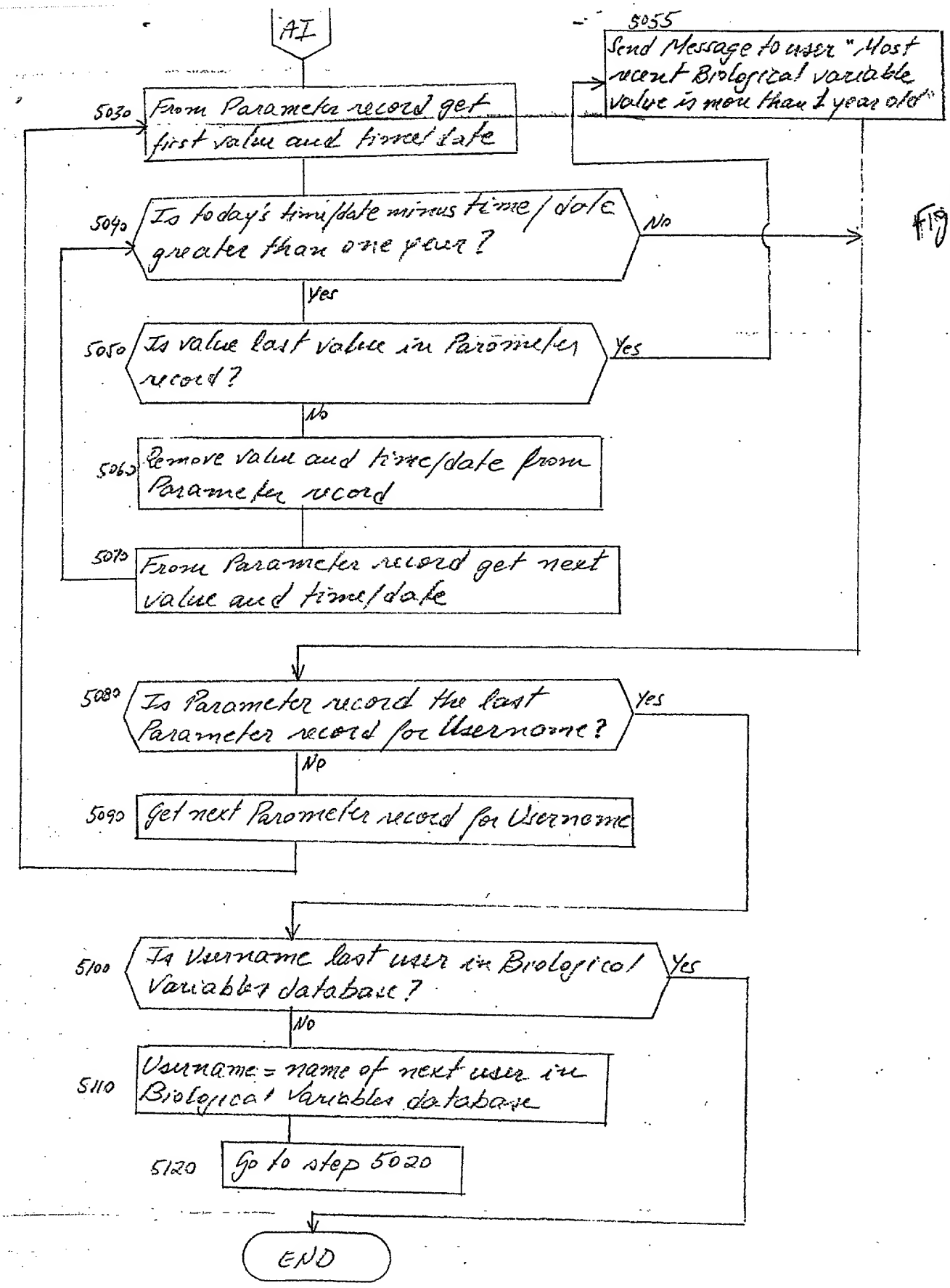

A1
5030
From Parameter record get first value and time/date
5040
Is today's time/date minus time/date greater than one year?
No
Yes
5050
Is value last value in Parameter record?
Yes
No
5060
Remove value and time/date from Parameter record
5070
From Parameter record get next value and time/date
5080
Is Parameter record the last Parameter record for Username?
Yes
No
5090
Get next Parameter record for Username
5100
Is Username last user in Biological Variables database?
Yes
No
5110
Username = name of next user in Biological Variables database
5120
Go to step 5020
5055
Send Message to user "Most recent Biological variable value is more than 1 year old"
END

Fig 20B

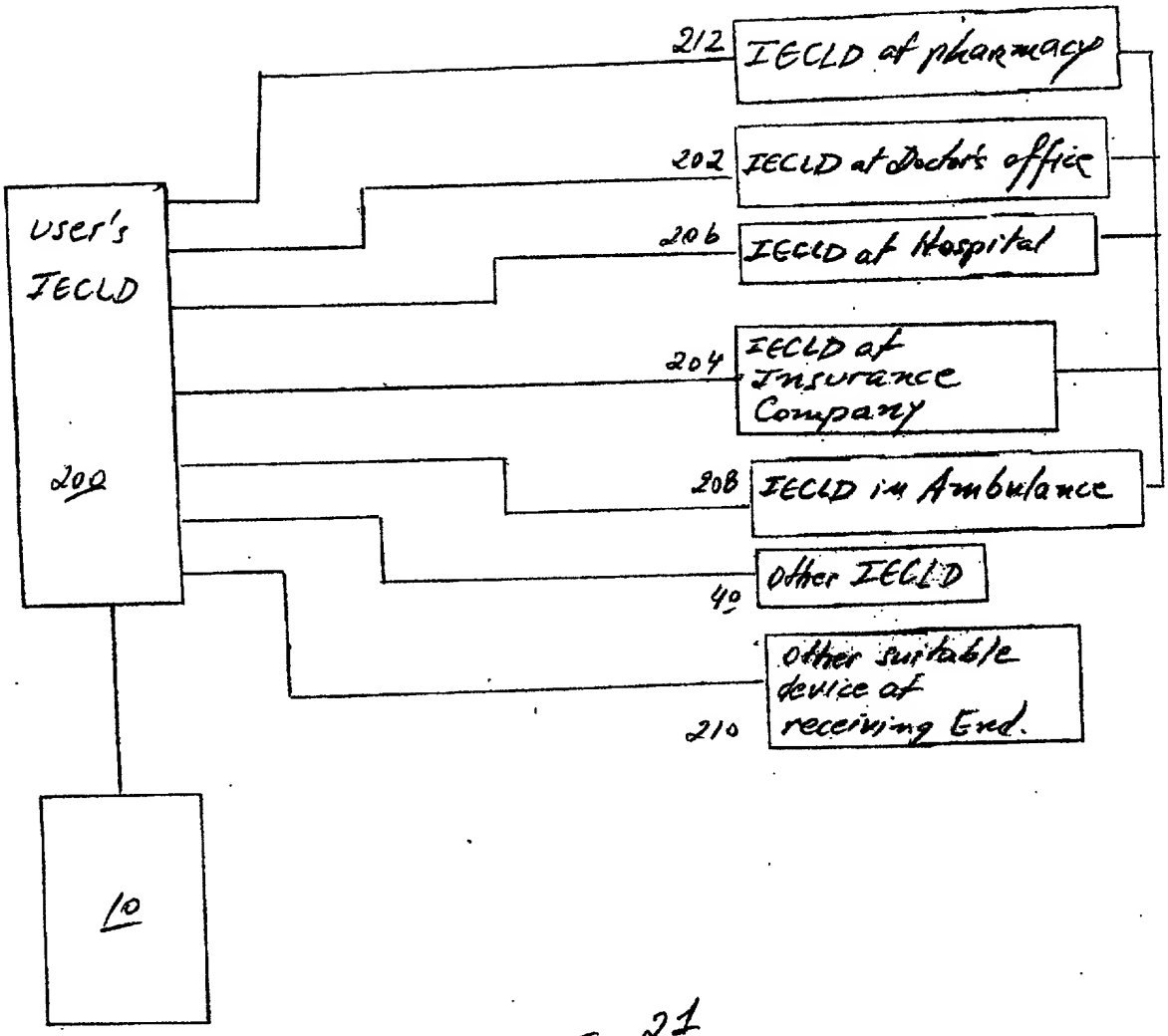

User's IECLD
200
212
IECLD at pharmacy
202
IECLD at Doctor's office
206
IECLD at Hospital
204
IECLD at Insurance Company
208
IECLD in Ambulance
40
Other IECLD
210
Other suitable device of receiving End.
10

Fig 21